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The Potential for Genetic Suppression of Insect Populations by Their Adaptations to Climate

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The Potential for Genetic Suppression of Insect Populations by Their Adaptations to Climate

By W. KLASSEN, J. F. CREECH, and R. A. BELL [1]

Many of our most serious insect pests have very broad geographical distributions. For example, the codling moth (*Carpocapsa pomonella* (L.)) is distributed from Canada to Argentina, and it occurs in Australia, South Africa, the Mediterranean, and throughout Europe north to the Scandinavian countries (*1*).[2] Insects with such broad distributions adapt in various ways to climate.

Many of the reports (*2, 3, 5, 6*) indicate that genetic differences occur between insect populations within a species with regard to (1) ability to undergo a hibernal diapause, (2) response to diapause-inducing stimuli, (3) duration of diapause, (4) temperature limits of diapause termination, (5) temperature optima for diapause termination, (6) ability to develop cold hardiness, (7) thermal constants and temperature threshold for development, (8) choice of hibernal niches and other behavioral traits associated with surviving inhospitable seasons, and (9) ability for aestival diapause, its duration and response to conditions that induce or terminate it.

Such genetic differences must exist so that adaptations of insects to climate may be appropriate to their locality. Changes in climate from locality to locality require appropriate changes in adaptations. Insects must synchronize their life cycles with the seasons so that (1) frost-sensitive stages are passed in the frost-free season, (2) feeding stages occur when food is available, and (3) no actively developing stages occur in periods of intense heat or drought. Therefore insects must be sensitive to stimuli that portend the change in seasons so that they may prepare for adverse periods.

If we can genetically disrupt the seasonal regulations or other climatic adaptations of insects, these insects may not survive. For example, if an insect population at Fargo, N. Dak., must respond to a photoperiod of 15 hours in order to enter diapause and be cold hardy in time for dangerous frosts and if we genetically modify the population so that it does not diapause until the day has shortened to 13 hours, then the population may be destroyed by the winter. Further, let us assume that this population must remain in diapause until early May, when the danger of killing frost is past and when the host plant has again become available. If we genetically shorten the diapause so that the insects resume development in March, then they would be destroyed by frost or lack of food.

Inappropriate adaptations to climate are lethal at certain times of the year; they are conditional lethal traits. We may use a conditional lethal trait or combination of conditional lethal traits to suppress or eradicate insect populations. The principle of suppressing insect populations by means of their adaptations to climate has been suggested by numerous investigators (*4, 5, 7*).

The purpose of this report is to show that a population may be suppressed by means of conditional lethal traits, particularly (1) when the population is held in check by partial sterility while conditional lethal genes are introduced and (2) when the population is held static by conventional means while the conditional lethal

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[2] Italic numbers in parentheses refer to Literature Cited, p. 10.

genes are introduced. Each conditional lethal trait may be determined by one to four genes, and two or three conditional lethal traits may be simultaneously introduced into the population.

Conditional lethal traits may be found in the genetic variations in adaptations to climate and to seasonal regulations. A few examples are (1) inability to diapause, (2) inappropriate duration of diapause, (3) inappropriate critical thresholds of diapause-inducing stimuli such as photoperiod, temperature, or dietary factors, (4) inappropriate choice of hibernal niches, and (5) inability to develop cold hardiness.

Native Population Overflooded With Release Strain Bearing Conditional Lethal Traits

A preliminary evaluation of the potential for insect population suppression by conditional lethal traits was made by Klassen and others (*5*). They considered the suppressive effect of a trait determined by one, two, or three autosomal genes and by three autosomal genes plus one sex-linked gene. In addition, these authors calculated the suppressive effect when two or three conditional lethal traits, each determined by a single dominant gene, are combined in the release strain. We decided to expand these calculations and to extend them to release strains with two or three conditional lethal traits. Each trait was determined by one, two, three, or four independent genes as follows:

One Dominant Autosomal Gene.—The genotypes that were inviable when the conditional lethal trait was expressed were AA and Aa, whereas aa was the only viable genotype.

Two Autosomal Genes With Additive Effects (aabb).—In the examples computed, each of the four alleles was assigned a genotypic value of 1 or 0. The native strain AABB had a genotypic value of 4, and the release strain aabb had a genotypic value of 0. We assumed that the conditional lethal trait was expressed in individuals with genotypic values of 0, 1, and 2. Therefore AABB, AABb, and AaBB were the only viable genotypes.

Three Autosomal Genes With Additive Effects (aabbdd).—Each of the six alleles was assigned a genotypic value of 1 or 0. The native strain AABBDD had a genotypic value of 6, and the release strain aabbdd had a genotypic value of 0. We assumed that the conditional lethal trait was expressed in individuals with genotypic values of 0, 1, 2, and 3. Examples of viable genotypes were AABBDD, AaBBDD, and AABBdd.

Four Autosomal Genes With Additive Effects (aabbddee).—Each of the eight alleles was assigned a genotypic value of 1 or 0. The native strain AABBDDEE had a genotypic value of 8, and the release strain aabbddee had a genotypic value of 0. We assumed that the conditional lethal trait was expressed in individuals with genotypic values of 0, 1, 2, 3, 4, and 5. Examples of viable genotypes were AABBDDEE, AABBDDee, and AaBbDDEE.

One Dominant Sex-Linked Gene and Three Autosomal Genes With Additive Effects (a-bbddee).—The sex-linked allele a was assigned a value of 0 and its allele A was assigned a genotypic value of 3. Since A was fully dominant, the gene AA had a value of 3. The autosomal factors B, D, and E were each assigned a value of 1, and their respective alleles b, d, and e were each assigned a value of 0. We assumed that the conditional lethal trait was expressed in individuals with genotypic values of 0, 1, 2, 3, 4, and 5. Examples of viable genotypes were A-BBDDEE, AABBDDEE, and a-BBDDEE. The heterogametic sex (A-BBDDEE) was assumed to be female, and the homogametic sex (AABBDDEE) was assumed to be male.

Algebraic expressions describing the segregation of genes that determine conditional lethal traits were derived by Klassen and others (*5*). These authors arbitrarily assigned values or "weights" to each allele so that each genotype could be given a "genotypic value." In addition, they arbitrarily set minimum genotypic values required for survival and gave algebraic expressions to calculate the numbers of surviving genotypes in the F_1, F_2, and F_3 generations when a native population is overflooded once with a release strain homozygous for the genes

that determine the conditional lethal traits. The algebraic expressions (table 1, Appendix) enabled us to calculate the fraction (w) of the affected population that was destroyed by one or more lethal traits and to calculate the suppression of the affected population relative to a native population not subjected to population control measures.

If a strain homozygous for more than one conditional lethal gene is released into a population of native insects, these genes will become distributed throughout the population in an almost random manner by the F_3 generation, barring linkage intensities of less than 50 crossover units. Therefore we may approximately calculate the fraction of the population that would be suppressed following a single release of a strain bearing several conditional lethal traits. If the frequency of individuals without lethal trait 1 is A and the frequency without lethal trait 2 is B, then the frequency of individuals without either lethal trait is AB. Therefore the frequency of individuals with one or both lethal traits is 1-AB, or the fraction of the population suppressed.

The suppression of the population must be calculated in relation to the uncontrolled native population. Let there be y native insects that increase Ø-fold each generation. Then the numbers of insects in the parental, F_1, F_2, and F_n generations are

$$y,\ y\text{Ø},\ y\text{Ø}^2,\ \text{and}\ y\text{Ø}^n$$

Similarly if x insects with conditional lethal traits are released into a population of y native insects, then the numbers of insects in the parental, F_1, F_2, and F_n generations are

$$x + y,\ (x + y)\text{Ø},\ (x + y)\text{Ø}^2,\ \text{and}\ (x + y)\text{Ø}^n$$

In the nth generation the conditional lethal traits are expressed in a fraction (w) of the affected population. The number of survivors is

$$(1—w)\ \ (x + y)\text{Ø}^n$$

Then the relative survival is

$$(1—w)\ \ (x + y) \div y$$

The release ratio X ($X = \frac{x}{y}$) required to obtain 98- to 99.9-percent suppression in the F_1 and F_3 generations was calculated (table 2) for conditional lethal traits determined by one dominant (dom.) gene, two autosomal (auto.) genes with additive effects, three autosomal genes with additive effects, and three autosomal genes with additive effects plus one dominant sex-linked (s.l.) gene.

The numbers in parentheses in table 2 are the genotypic values of the survivors. For example, 2 auto. (3, 4) indicates the trait is determined by two independent autosomal genes with equal and additive effects and the conditional lethal trait will not be expressed in individuals possessing three or four native-type alleles. Similarly 3 auto. + 1 s.l. (6–9) indicates that the trait is determined by three independent autosomal genes with equal and additive effects plus one sex-linked dominant gene with an effect equal to three dominant autosomal alleles. The survivors possess the native-type sex-linked allele and at least three native-type autosomal alleles, or they may lack the native-type sex-linked allele but possess all six native-type autosomal alleles. These calculations were made with an IBM System/360, Model G50 computer, as explained in the next section.

If the release strain is homozygous for only one conditional lethal trait that expresses itself in the F_1 generation, the degree of suppression obtained cannot exceed that obtained with ordinary dominant lethal mutations. However, if the genes for conditional lethal traits become randomly distributed within the population before they are expressed, the degree of suppression may increase significantly if the trait is under polyfactorial control (table 2). If the conditional lethal trait is determined by a single dominant gene, the degree of suppression cannot vary between generations.

When two conditional lethal traits are combined into a single population, release ratios varying from two to five are adequate to obtain 98-percent suppression if the traits are expressed in the F_3 generation; similarly release ratios of three to 14 will yield 99.9-percent suppression in the F_3 generation (table 2). When three conditional lethal traits are combined into a single population, release ratios of one or two will yield 98-percent suppression in the F_3 generation, and ratios of two to five will yield 99.9-percent suppression. Although these values are approximations, they were sufficiently encouraging to undertake the more precise calculations presented in the following sections.

Suppression of Population Held in Check by Partial Sterility With Conditional Lethal Traits

Calculations are presented to show the potential for population suppression by conditional lethal genes that are introduced while the population is held in check by partial sterility. Such a method might be more economical and more desirable from the standpoint of avoiding side effects to nontarget organs than that of keeping insects in check with insecticides or other control measures.

For the calculations, we assume that the level of sterility required could be induced without adversely affecting mating competitiveness, sperm competitiveness, or lifespan. The level of sterility required to hold a population constant depends on the rate of increase between generations. For example, if a population normally increased fivefold per generation, then 80-percent sterility in all individuals would prevent a change in numbers. Similarly if a population increased tenfold, then 90-percent sterility of all individuals would prevent a change. Moreover, if a population normally increased fivefold per generation, the 90-percent sterility of all individuals would cause a downward trend in numbers.

To keep a fully fertile native population in check by overflooding with partially sterile individuals, slightly higher levels of sterility are required in the release strain than when all individuals of the native population are partially sterile. The smaller the release ratio, the higher the level of sterility required. Whether matings between partially sterile males and partially sterile females yield offspring has an important bearing on population trends in the calculations presented here.

In our calculations the number of individuals released in each generation remains constant, either 198,000 or 396,000; parental generation of the native population consists of 2,000 individuals. Thus the initial ratio of released to native insects is 99:1 or 198:1. However, if the target population increases, the release ratio diminishes, and the population's growth accelerates after the F_1 generation and vice versa.

If matings between partially sterile males and partially sterile females produce no offspring, the overall population is held nearly static by the following two sets of conditions: Initial release ratio of 99:1 and 198:1, each with 90-percent sterility and a fivefold increase between generations. However, when matings between partially sterile males and partially sterile females produce offspring commensurate with the level of sterility, the population increases even when the rate of increase is only fivefold and the initial release ratio is 198:1.

Because of the complexity of the equations involved in arriving at the relative frequency distributions of genotypes and numbers of offspring, especially with three and four genes, we used a digital computer programed to generate from the F_1 genotypic identification and distribution of offspring, the F_2, F_3, and F_4 genotypic identifications, offspring distributions, and relative frequencies with provisions to weight the computations as dictated by the particular study performed. We programed in PL/1-F and FORTRAN IV-G and ran under release 15/16 of OS on an IBM System/360, Model 50G (128K), using three IBM 2311 direct-access storage devices for intermediate storage and an IBM 1403 500-line-per-minute printer for final output. The computer facility is located in the University Computer Center, North Dakota State University.

The method employed in arriving at the final answers on the computer is similar to and is derived from a method that might be employed if one were to compute the answers by hand (see Appendix, p. 10) If we have a native insect population consisting of y individuals with a genotypic identification of *dd*, and if we release a controlled population consisting of x individuals with a genotypic identification of *DD*, we might calculate the F_1 generation in the following way:

Let *M* represent male and *F* female members.

$dd\ (M) \times dd\ (F) = y^2/(x+y)$ *dd* males and females

$DD\ (M) \times DD\ (F) = x^2/(x+y)$ *DD* males and females

$DD\ (M) \times dd\ (F) = xy/(x+y)$ *Dd* males and females

$dd\ (M) \times DD\ (F) = xy/(x+y)$ *Dd* males and females

Total, where z is an arbitrary weighting factor:

$zy^2/(x+y)$	*dd* males and females
$zx^2/(x+y)$	*DD* males and females
$2\ zxy/(x+y)$	*Dd* males and females

Similarly we might calculate the F_2, F_3, and F_n generations by determining what fraction of each genotype from the previous generation contributes to the current generation when all combinations of the previous generation have been determined. The following method describes our work with four genes and is generally applicable. All programs written for this study had this same form.

All possible genotypes will appear in the F_2 generation. Therefore the contribution by each F_2 mating to a particular F_3 genotype will be the same as the contribution from the same F_3 mating to the same respective F_4 genotype. This holds true for all higher generations assuming that no new genotypes are added and none of the existing ones are removed. We have provided a simplified block diagram of the general program flow and the techniques employed in developing computer programs suitable for this study (fig. 1, Appendix).

To make a computer program of this type feasible, we first developed a unique numerical representation for each genotype. Then we developed a method to compute and store the fractional contributions of all combinations of F_1 genotypes (i.e., matings) to each particular member of the F_2 generation and the fractional contributions of all combinations of F_2 genotypes to each particular F_3 genotype. The contributions of the latter remain constant for all higher order cases. Therefore upon completion of the F_3 generation "formulas," the numerical computations necessary to determine the final answers can be made. We gave each allele a unique number, and therefore we were able to give each genotype a unique number. For example, AaBbDdEe was assigned 12345678, and A-BBDdee was assigned 10335688. The genotypes with the exception of the F_1 were generated by the computer.

The first step in the program was to generate all possible genotypes that first appear in the F_2 generation. Initially the genotypic identifications for the F_1 generation were read into the computer on punched cards. In handling the identification, each group of eight numbers in the case of four genes was treated as a set. Each number, i.e., each allele, in the set was stored in the core memory in such a way that it alone could be available at any time.

We generated the F_2 genotypes in the following manner: The starting point in obtaining all possible combinations of F_1 genotypes was to introduce two internal "pointers," P_1 and P_2, with each pointer equal to 1. The genotypic identification sets stored in the core memory in locations relative to the pointer values were then transferred to new core locations and expanded into all possible combinations, taking eight numbers at a time. Each combination was stored immediately after its generation, and thus upon completion of the expansion process, 256 new sets existed. This array then needed to be searched to determine what genotypes had been generated and what fractional contribution to the F_2 generation had been made. Each number in the set of eight had a unique storage location, but we needed to generate a single identification number for each set (genotype). This was accomplished by adding 1 to each member of the set and then successively multiplying the eight new numbers together. For example,

storage appearance	add 1, multiply
1 2 3 4 5 6 7 8	$2\times3\times4\times5\times6\times7\times8\times9$
result	
362,880	

Since each identifier was unique, the result after multiplication was unique. This result was stored in one core location and thereby provided an integer number for cross-reference to the original alphabetical identification and also a single number for future computations. We then compiled a table[3] of these results. The identification number of each set (genotype) was compared with all existing identification numbers in the table. If a matching number was found, this meant that this particular genotype had been previously generated and stored; if not, the result was stored in the next available position in the table.

To determine what fractional contribution

[3] Refers to computer programing here and to diagram of general program flow (fig. 1, Appendix), not to text tables in this report.

had been made, results in the expansion, consisting of the 256 sets in the case of four genes, had to be checked to determine if a particular identification number had previously appeared in the expansion. When the expansion was completed, a variable (IRES) was set equal to the first member of the set. A second variable (ADDER) was set to zero. Each member of the set was then compared to IRES. If a matching member was found, ADDER was incremented by 1, and the member of the set on which the match had been made was set to zero to prevent further matchings. After all members had been checked against IRES, the variable ADDER was stored in a table at a location corresponding to the location in the table where the result of the multiplication (identification number) had been stored. The variables P_1 and P_2 were also stored in corresponding table locations in order to determine what matings had contributed the previously stored fractions to the F_2 generation.

Control was then returned to checking the remainder of the 256 sets. The variable IRES was set equal to the next nonzero member of the set, ADDER was set to zero, and the previously described program steps were executed until all 256 sets had been accounted for. Control was then returned to the original expansion process, and the variable P_2 was increased by 1. This process continued until all possible combinations of the F_1 genotypes had been made. This completed the first step of the program.

The second phase was to generate from the previous results similar tables that would be used in making the final computations for the F_3 and F_4 generations. Since all possible genotypes had already appeared, their generation for the next set of tables was not necessary. All combinations of the F_2 genotypes could be made, and each member could be directly checked against the existing table until a location relative to the first position was found by matching. Because of the massive number of combinations and resulting fractional contributions (up to 2.5 million), we could not store these numbers in core memory. The tables were written on direct-access storage devices, commonly called disk storage or disk files.

To minimize the number of searches required to find a particular matching, the existing table was first sorted into numerical ascending order. Matchings were found by executing a binary search on the table. This reduced the average number of searches from 41 (81 maximum, one minimum) to four (seven maximum, one minimum) and considerably increased our execution speed.

As before, two pointers, P_3 and P_4, were introduced and the process of expansion was begun. The results were intermediately stored in core memory buffer areas. When a buffer was filled, the entire contents were written into the proper disk file location, and this again resulted in increased execution speed. When this phase of the program was completed, the only remaining step was to actually compute the number of offspring or relative frequency for a particular genotype. A set of variables consisting of release ratios, numbers of offspring per mating, and levels of sterility were read into core memory on punched cards. The values for numbers of offspring for the F_1 generation were then computed from formulas that were entered at the time the source program was compiled.

The process of computing the F_2 and higher generations was then accomplished by referring to the previously generated tables. Three pointers were again introduced, P_1 to 1 and the remaining two (P_2 and P_3) to zero. Pointer P_1 was used to point to the table location of the particular genotype that was to be generated, whereas P_2 and P_3 were set equal to the previously stored table values that identified which two genotypes had been crossed to produce a particular fractional contribution to the genotype being generated. Since the values for the number of F_1 offspring were generated in the same order and the same relative storage locations were maintained as in the previously generated tables, the following formula could be applied:

> Offspring (F_2) (relative location in memory determined by P_1) = (contribution/256) (fractional contribution stored in core memory and accessed by P_1) $\times$ (F_1 offspring (P_2)) (P_2 used to locate appropriate F_1 value) $\times$ (F_1 offspring (P_3)) (P_3 used to locate second appropriate F_1 value)

Therefore offspring (F_2) = (contribution (P_1)/256) $\times$ (F_1 (P_2)) $\times$ (F_1(P_3)). The value for

the F_2 offspring was then weighted accordingly.

The process for determining the numbers of F_3 and F_4 offspring was identical except that the tables containing fractional contributions and relative locations were stored on direct-access storage devices.

The final phase was to print the results. The results of the computation process were stored in core memory and were written on the printer only when the F_1, F_2, F_3, and F_4 computation processes were completed. Control was then returned to the point in the program where computations were made based on the previously computed formulas, using a new particular weighting factor.

All programs written for this study had this same basic form and were executed in a similar manner. The number of genes involved dictated the amount of core storage required, the number of genotypes generated, and the speed of execution of the entire program.

Using these computational methods, we calculated the theoretical population trends (tables 3–14) when a native population of 2,000 insects (1:1 sex ratio) was overflooded by partially sterile insects. The native and release strains differed by one to four genes, and in some instances one of the four genes was sex-linked. The rate of increase between generations was either fivefold or tenfold. Sterility of both sexes of the release strain was either 80 or 90 percent. Four releases were made to coincide with the parental, F_1, F_2, and F_3 generations. Each release consisted of either 198,000 or 396,000 insects (1:1 sex ratio). Matings between partially sterile males and partially sterile females were assumed to yield either no offspring or a number of offspring proportionate to their level of sterility.

In tables 3–14 the number of individuals for each genotype is rounded to the nearest whole number. However, the column totals were computed before the numbers had been rounded.

To illustrate how populations may be suppressed with genes for conditional lethal traits while the populations are held in check with partial sterility, we derived tables 16–27 from tables 3–14. (Actually the number of individuals in tables 16–27 were obtained directly from the computer printout for tables 3–14. In this way rounding errors were minimized.) Table 15 gives the interpretations and transcriptions and the method required to derive tables 16–27 from tables 3–14. The values in tables 3–14 were obtained by introducing insects with all alleles designated by capital letters into populations with all alleles designated by lower case letters. When this was not so, certain transcriptions of lower case letters to capitals were made in order to obtain the appropriate genotypic frequencies from tables 3–14. Tables 16–27 are summarized in table 28. In establishing table 28, we arbitrarily assumed that complete suppression would be achieved when the population of individuals with viable genotypes was reduced to 30. The eight cases in table 28 are as follows:

Case	*Number released*	*Sterility (percent)*	*Rate of increase*
1	198,000	90	Fivefold.
2		80	Do.
3		90	Tenfold.
4		80	Do.
5	396,000	90	Fivefold.
6		80	Do.
7		90	Tenfold.
8		80	Do.

The following data about complete suppression are indicated in table 28:

(1) Polyfactorial inheritance of a conditional lethal trait may be more or less advantageous from the standpoint of complete suppression than when the trait is inherited as a single fully dominant gene, depending on the number of native-type alleles required to prevent expression of the lethal trait.

(2) The more lethal traits incorporated in the release strain, the greater is the approach to complete suppression.

(3) Complete suppression cannot be achieved when the number of insects released in each generation is 198,000, sterility is 80 percent, and the rate of increase between generations is tenfold (case 4), except in the F_4 generation when the release strain possesses three lethals (two are dominant autosomals and the third is bifactorial, requiring three native alleles to prevent expression) and when matings between partially sterile insects yield offspring proportionate to the level of sterility.

(4) The number of generations per year may profoundly affect the likelihood of complete suppression. When matings between partially sterile insects produce no offspring, the more generations per year (hence the more releases made), the greater is the likelihood for complete suppression. Generally this is also true when matings between partially sterile insects yield a number of offspring proportionate to their levels of sterility. However, when the release strain has one conditional lethal trait inherited as two autosomal genes (four native alleles required for survival) or three autosomal genes (five native alleles required for survival), then complete suppression would be achieved if the trait was expressed in the F_3 generation but not if the expression was delayed to the F_4 when 396,000 insects are released per generation that are 90 percent sterile and when the rate of increase is tenfold (case 7).

(5) When one of the traits is determined by a dominant gene on the sex chromosomes, the number of male survivors may differ widely from the number of female survivors. Doubtless the low probability of females finding a mate when the density of males is low would have an important role in complete suppression.

If matings between partially sterile insects yield offspring partially or fully proportionate to the level of sterility, the population may become large and threaten damage to the economic host. This consideration, along with adverse effects of sterilization procedures and economic factors, should be taken into account in deciding whether the population to be completely suppressed should be held in check by partial sterility or by conventional means. In lepidopterous species partial sterility is inherited (*8–10*). In such species the use of partial sterility would be much more effective than indicated in our calculations in facilitating the introduction of genes for conditional lethal traits. Similar considerations would apply if the release insects differed from the native insects by one or more reciprocal chromosomal translocations.

Suppression of Population Held Static by Conventional Means With Conditional Lethal Traits

By suitable means such as application of insecticides, a population of insects may be prevented from increasing. For example, a population that increases fivefold between generations may be held static by destroying 80 percent of each generation. We calculated the effects of overflooding only the parental (spring) generation with a strain homozygous for one, two, or three conditional lethal traits. The population is assumed to remain static in all subsequent generations. We calculated the relative frequencies of each genotype in the F_1, F_2, F_3, and F_4 generations by using the general methods already outlined. However, the number of insects with each genotype was divided by the total number of insects. For purposes of computation, we assumed that each mated female produced one pair of offspring and the insects were fully fertile. These values are shown in tables 29–34.

To understand the significance of these figures, consider a field of 1,000 acres with 10 insects per acre, or a total of 10,000 insects. This low population for a number of economic pests such as the boll weevil (*Anthonomus grandis* Boheman), pink bollworm (*Pectinophora gossypiella* (Saunders)), and perhaps others is feasible and is held static, or at least is not permitted to reach economic density levels, throughout the season by using insecticide applications or other available control measures. We can calculate the effect on this population when the conditional lethal traits are expressed. The number of survivors is the product of the number of insects times the relative frequency of genotypes capable of surviving. In this example we obtain the frequency of viable genotypes from tables 29–34 and multiply this frequency by 10,000. We calculated cases 1a–15b in table 41 in order to illustrate the use of tables 29–34 and to demonstrate the potential of conditional lethal traits for population suppression. The method used to derive table 41 is shown in table 15.

Case 1 in table 41 was calculated by using table 29. With one gene the genotypic frequencies do not change from generation to genera-

tion. If 500 insects were released per acre to give a release ratio of 50:1 and if the total population (native plus released) was held static thereafter, four insects would be capable of surviving when the conditional lethal trait would be expressed in the F_2 or subsequent generations. Whether this level of survival would result in eradication would depend on the species concerned, but in all likelihood so few insects on 1,000 acres would represent eradication. In actual practice a judgment would have to be made concerning the minimum density required for survival. After this judgment is made, the release ratio required for complete suppression can be obtained from table 29.

Examination of cases 2–6 in table 41 shows that when a conditional lethal trait is determined by more than one gene, the trait may be expressed in a progressively higher proportion of individuals from generation to generation. Cases 7–15 show that when the release strain possesses more than one conditional lethal trait, the efficiency of suppression is progressively augmented in succeeding generations. If the conditional lethal traits were expressed in the last generation of the season, release ratios ranging from 10:1 to 50:1 would be adequate to decimate most populations with four generations per year. This would require releases ranging from 100 to 500 insects per acre when the natural population consists of 10 insects per acre. Higher ratios would be required if the species had fewer than four generations per year. In most instances these ratios would have to be two to five times higher to achieve the same suppression in the F_2 as in the F_4.

If a conditional lethal trait is under the control of more than one gene in a species with two generations per year, conditional lethal genes would be about one to 10 times more efficient than dominant lethal mutations in suppressing insect populations. If the species has three generations per year, conditional lethal genes would be up to 100 times more efficient than dominant lethal mutations. Since the release of insects carrying dominant lethal mutations is considered feasible for eradicating a number of economic insects existing at low population levels, the practical significance of the conditional lethal genes, if such can be found and used, is readily apparent.

We calculated the effects of overflooding a native population once every generation with a strain homozygous for one, two, or three conditional lethal traits. We assumed that appropriate measures would be taken to hold the population constant in all generations. We calculated the relative frequencies of each genotype in the F_1, F_2, F_3, and F_4 generations, and these values are shown in tables 35–40.

To understand the significance of these figures, we will again consider a field of 1,000 acres with 10 insects per acre, or a total of 10,000 insects. This population is held static throughout the season with insecticide applications or other suitable means. We calculated the effect on this population when the conditional lethal traits are expressed. The number of survivors is 10,000 times the relative frequency of the genotypes capable of surviving. The latter data were obtained from tables 35–40. To demonstrate the potential of conditional lethal traits for population suppression and to illustrate the use of tables 35–40, we then calculated cases 16a–30b, as shown in table 41.

Case 16a in table 41 was calculated by using table 35. If 100 insects are released per acre during each generation (release ratios of 10:1), the frequency of viable genotypes would rapidly decline from 83 in the F_1 to 0 in the F_4. Comparison of case 16a with cases 17–21 shows that the efficiency of suppression may be significantly greater when a conditional lethal trait is under the control of several genes than when the trait is determined by a single fully dominant factor. Cases 22–30 show that when the release strain possesses more than one conditional lethal trait, the release ratio required to destroy the population is much smaller than when the release strain possesses only one conditional lethal trait.

Release ratios ranging from 1:1 to 10:1 would be adequate to decimate most populations with four generations per year if the conditional lethal traits are expressed in the last generation. In many instances such low ratios would be adequate for species with two generations per year but not for those with one. To sup-

press a population with just two generations per year to the same extent as a population with four generations per year, we would have to release three to 10 times as many insects per release as are required to suppress a population with four generations per year.

Discussion

The preceding calculations indicate that conditional lethal traits could be very effective in suppressing insect populations. The greatest advantage of using adaptations to climate or seasonal changes as conditional lethal traits is that these traits already exist in populations at latitudes or altitudes different from those of the locality where we desire complete suppression.

To assess the possibility of utilizing these adaptations to suppress an insect population, one would collect a strain from a locality with a distinctly different season, select the strain to apparent homozygosity for one or more traits, cross the latter to the strain from the locality designated for suppression, and determine the expression of the traits in hybrid generations. Since temperature may modify responses to photoperiod (*2*), the expression of the traits in hybrid generations should be checked in an environmental chamber programed to simulate conditions in the field. In this way one could detect undesirable genotypes in the release strain. Although desirable, one need not determine precisely the inheritance of each trait. The investment required to assess the feasibility of this proposed suppression method in any particular instance would not be prohibitive.

Literature Cited

(1) Commonwealth Institute of Entomology.
1951–69. distribution maps of insect pests. Series A 41, 228 pp. London.

(2) Danilevskii, A. S.
1965. photoperiodism and seasonal development of insects. 283 pp. London.

(3) ——— ed.
1968. photoperiodic adaptations to insects and acari. 269 pp. Leningrad University.

(4) Hogan, T. W.
1966. physiological differences between races of teleogryllus commodus (walker) (orthoptera: gryllidae) related to a proposed genetic approach to control. Austral. Jour. Zool. 14: 245–251.

(5) Klassen, W., Knipling, E. F., and McGuire, J. U.
1970. the potential for insect population suppression by dominant conditional lethal traits. Ent. Soc. Amer. Ann. 63: 238–255.

(6) Masaki, S.
1961. geographic variation of diapause in insects. Hirosaki Univ. Facul. Agr. Bul. 7: 245–251.

(7) ———
1968. geographic adaptation in the seasonal life cycle of mamestra brassicae (linne) (lepidoptera: noctuidae). Hirosaki Univ. Facul. Agr. Bul. 14: 16–26.

(8) North, D. T., and Holt, G.
1968. inherited sterility in progeny of irradiated male cabbage loopers. Jour. Econ. Ent. 61: 928–931.

(9) Proverbs, M. D., and Newton, J. R.
1962. some effects of gamma radiation on the reproductive potential of the codling moth carpocapsa pomonella (l.) (lepidoptera: olethruetidae). Canad. Ent. 94: 1162–1170.

(10) Walker, D. W., and Pedersen, K. B.
1969. population models for suppression of the sugarcane borer by inherited partial sterility. Ent. Soc. Amer. Ann. 62: 21–26.

Appendix

The following method is used to calculate the genotypic frequencies in hybrid generations when a native population (AABB) is overflooded with a partially sterile release strain (aabb) in the parental, F_1, F_2, and F_3 generations.

Let there be $\underline{x}$ aabb females, $\underline{g}$ aabb males whose level of fertility is $\underline{\alpha}$ and $\underline{y}$ AABB females, $\underline{\gamma}$ AABB males whose level of fertility is 1.
Total number of females = $\underline{x} + \underline{y}$ = total number of matings. Assuming frequencies are $\underline{x}/(\underline{x}+\underline{y})$ and $\underline{y}/(\underline{x}+\underline{y})$ that females mate or remate at random with males,
Relative frequencies of three kinds of matings with their level of fertility of male parent are: (1) AABB X aabb = $2\underline{xy}\underline{\alpha}/(\underline{x}+\underline{y})^2$; (2) AABB X AABB = $\underline{y}^2/(\underline{x}+\underline{y})^2$; (3) aabb X aabb = $\underline{x}^2\underline{\alpha}^2/(\underline{x}+\underline{y})^2$.
We multiply these values by total number of matings ($\underline{x}+\underline{y}$) to get total number of each kind of mating multiplied by respective levels of fertility, as follows (for either sex): (1) AABB X AABB = $\underline{y}^2/(\underline{x}+\underline{y})$; (2) AABB X aabb = $2\underline{xy}\underline{\alpha}/(\underline{x}+\underline{y})$; (3) aabb X aabb = $\underline{x}^2\underline{\alpha}^2/(\underline{x}+\underline{y})$.
Let there be $\underline{\beta}$ offspring per mating, then total number of $\underline{F}_1$ offspring is: (1) AABB: $\underline{y}^2\underline{\beta}/(\underline{x}+\underline{y})$ = $\underline{\gamma}\underline{y}$; (2) AaBb: $2\underline{xy}\underline{\alpha}\underline{\beta}/(\underline{x}+\underline{y}) = 2\underline{f}$; (3) aabb: $\underline{x}^2\underline{\alpha}^2\underline{\beta}/(\underline{x}+\underline{y}) = 2\underline{g}$.
Now add $\underline{x}$ aabb females and $\underline{x}$ aabb males with $\underline{\alpha}$ fertility and we have (1) AABB: $\underline{g}$ females and $\underline{g}$ males; (2) AaBb: $\underline{f}$ females and $\underline{f}$ males; (3) aabb: $\underline{g}$ females and $\underline{g}$ males; and (4) aabb: $\underline{x}$ females and $\underline{x}$ males with $\underline{\alpha}$ fertility.
Thus we get the following:

Matings	Relative frequency x respective levels of fertility of male parent	Total offspring
AABB X AABB	$\underline{g}^2/(\underline{g}+\underline{f}+\underline{g}+\underline{x})^2$	$\underline{g}^2\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})$
AABb X AABB	$2\underline{gf}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})^2$	$2\underline{gf}\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})$
AABb X AaBb	$2\underline{g}^2/(\underline{g}+\underline{f}+\underline{g}+\underline{x})^2$	$2\underline{g}^2\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})$
AABb X aaBB	$2\underline{g\gamma}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})^2$	$2\underline{g\gamma}\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})$
AABb X AAbb	$\underline{f}^2/(\underline{g}+\underline{f}+\underline{g}+\underline{x})^2$	$\underline{f}^2\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})$
AABb X aaBb	$2\underline{fg}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})^2$	$2\underline{fg}\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})$
AABb X aabb	$2\underline{f\alpha}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})^2$	$2\underline{f\alpha}\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})$
aaBB X aaBB	$\underline{g}^2/(\underline{g}+\underline{f}+\underline{g}+\underline{x})^2$	$\underline{g}^2\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})$
aaBb X aaBb	$2\underline{g\alpha}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})^2$	$2\underline{g\alpha}\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})$
aabb X aabb	$\underline{x}^2\underline{\alpha}^2/(\underline{g}+\underline{f}+\underline{g}+\underline{x})^2$	$\underline{x}^2\underline{\alpha}^2\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})$

Genotypes of offspring and their numbers from matings: (1) AABB is $\underline{g}^2\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})$; (2) AABB, aABB, AABb, and aABb are $\underline{gf}\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})$;
(3) AaBb is $2\underline{fg}\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})$; (4) AaBB, [illegible], AaBb, [illegible], and aaBb are $\underline{f}^2\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})$; (5) AABb, AaBB, aABb, aaBB, AAbb, aAbb, aaBb, and aabb are $\underline{g\alpha}\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})$;
$\underline{f}^2\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})$, $2\underline{f}^2\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})$, $\underline{f}^2\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})$, $2\underline{f}^2\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})$, $4\underline{f}^2\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})$, $2\underline{f}^2\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})$,
$\underline{f}^2\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})$, $2\underline{f}^2\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})$, and $\underline{f}^2\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})$, respectively; (6) AaBb, aaBb, Aabb, and aabb are $\underline{f\alpha}\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})$;
(7) AaBb, aaBb, Aabb, aabb are $\underline{f\alpha}\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})$; (8) aabb is $\underline{\alpha}^2\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})$; (9) aabb is $2\underline{x\alpha}\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})$; and (10) aabb is $\underline{x}^2\underline{\alpha}^2\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x})$.
A summation of $\underline{F}_2$ offspring is as follows: (1) AABB: $\underline{g}^2\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x}) + \underline{gf}\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x}) + \underline{f}^2\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x}) + 16(\underline{g}+\underline{f}+\underline{g}+\underline{x}) = 2\underline{h}$; (2) AaBB: [illegible] $= 2\underline{i}$; (3) AABb: [illegible] $= 2\underline{j}$; (4) AaBb: [illegible] $= 2\underline{k}$; (5) AABB: [illegible] $= 2\underline{l}$; (6) AaBb: $2\underline{f}^2\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x}) + 16(\underline{g}+\underline{f}+\underline{g}+\underline{x}) + \underline{f\alpha}\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x}) + 2(\underline{g}+\underline{f}+\underline{g}+\underline{x}) = 2\underline{n}$; (7) AaBb: $\underline{f\alpha}\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x}) + 2(\underline{g}+\underline{f}+\underline{g}+\underline{x}) + \underline{f\alpha}\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x}) + 2\underline{g\alpha}\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x}) + \underline{f\alpha}\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x}) + 2(\underline{g}+\underline{f}+\underline{g}+\underline{x})$
$+ \underline{f\alpha}\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x}) + 2(\underline{g}+\underline{f}+\underline{g}+\underline{x}) + 2\underline{g\alpha}\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x}) + 4\underline{f}^2\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x}) + 16(\underline{g}+\underline{f}+\underline{g}+\underline{x}) = 2\underline{p}$; (8) AaBb: $2\underline{f}^2\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x}) + 16(\underline{g}+\underline{f}+\underline{g}+\underline{x}) + \underline{f\alpha}\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x}) + \underline{f\alpha}\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x}) + 2(\underline{g}+\underline{f}+\underline{g}+\underline{x}) + \underline{f\alpha}\underline{\beta}/(\underline{g}+\underline{f}+\underline{g}+\underline{x}) = 2\underline{q}$; (7) aaBB: $\underline{f}^2\underline{\beta} + 16(\underline{g}+\underline{f}+\underline{g}+\underline{x}) = 2\underline{r}$; (8) aaBb: $2\underline{f}^2\underline{\beta} + 16(\underline{g}+\underline{f}+\underline{g}+\underline{x}) + \underline{f\alpha}\underline{\beta} + 2(\underline{g}+\underline{f}+\underline{g}+\underline{x}) + \underline{f\alpha}\underline{\beta} + 2(\underline{g}+\underline{f}+\underline{g}+\underline{x}) = 2\underline{s}$; and (9) aabb: $\underline{f}^2\underline{\beta} + 16(\underline{g}+\underline{f}+\underline{g}+\underline{x}) + \underline{f\alpha}\underline{\beta} + 2

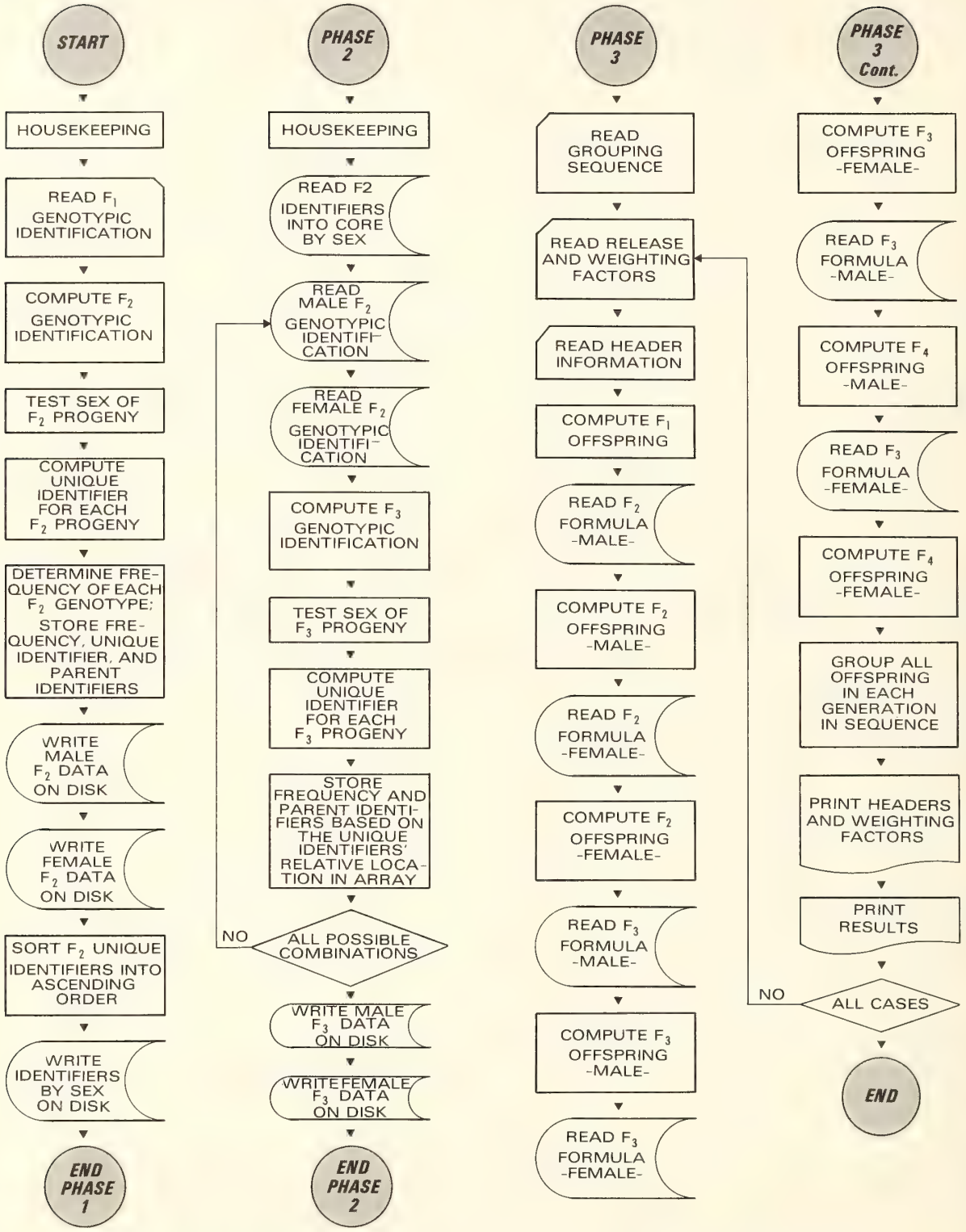
START
HOUSEKEEPING
READ F_1 GENOTYPIC IDENTIFICATION
COMPUTE F_2 GENOTYPIC IDENTIFICATION
TEST SEX OF F_2 PROGENY
COMPUTE UNIQUE IDENTIFIER FOR EACH F_2 PROGENY
DETERMINE FREQUENCY OF EACH F_2 GENOTYPE; STORE FREQUENCY, UNIQUE IDENTIFIER, AND PARENT IDENTIFIERS
WRITE MALE F_2 DATA ON DISK
WRITE FEMALE F_2 DATA ON DISK
SORT F_2 UNIQUE IDENTIFIERS INTO ASCENDING ORDER
WRITE IDENTIFIERS BY SEX ON DISK
END PHASE 1
PHASE 2
HOUSEKEEPING
READ F2 IDENTIFIERS INTO CORE BY SEX
READ MALE F_2 GENOTYPIC IDENTIFICATION
READ FEMALE F_2 GENOTYPIC IDENTIFICATION
COMPUTE F_3 GENOTYPIC IDENTIFICATION
TEST SEX OF F_3 PROGENY
COMPUTE UNIQUE IDENTIFIER FOR EACH F_3 PROGENY
STORE FREQUENCY AND PARENT IDENTIFIERS BASED ON THE UNIQUE IDENTIFIERS' RELATIVE LOCATION IN ARRAY
NO
ALL POSSIBLE COMBINATIONS
WRITE MALE F_3 DATA ON DISK
WRITE FEMALE F_3 DATA ON DISK
END PHASE 2
PHASE 3
READ GROUPING SEQUENCE
READ RELEASE AND WEIGHTING FACTORS
READ HEADER INFORMATION
COMPUTE F_1 OFFSPRING
READ F_2 FORMULA -MALE-
COMPUTE F_2 OFFSPRING -MALE-
READ F_2 FORMULA -FEMALE-
COMPUTE F_2 OFFSPRING -FEMALE-
READ F_3 FORMULA -MALE-
COMPUTE F_3 OFFSPRING -MALE-
READ F_3 FORMULA -FEMALE-
PHASE 3 Cont.
COMPUTE F_3 OFFSPRING -FEMALE-
READ F_3 FORMULA -MALE-
COMPUTE F_4 OFFSPRING -MALE-
READ F_3 FORMULA -FEMALE-
COMPUTE F_4 OFFSPRING -FEMALE-
GROUP ALL OFFSPRING IN EACH GENERATION IN SEQUENCE
PRINT HEADERS AND WEIGHTING FACTORS
PRINT RESULTS
NO
ALL CASES
END

FIGURE 1.—General program flow and techniques used to develop computer programs.

Table 1.--Fraction surviving in F_1 and F_3 generations of native population into which insects bearing conditional lethal traits are released in ratio of X:1 native insects

Inheritance of conditional lethal traits in release strain	Genotypic values of survivors	Generation	Fraction surviving[1/]
1 dominant gene----	--------	F_1, F_3	$1 - \frac{X^3 + 3X}{X^3 + 3X + 1}$
2 autosomal genes, additive--------	3 or 4	F_1	$\frac{4}{4X^2 + 8X + 4}$
		F_3	$\frac{56X^6 + 432X^5 + 1272X^4 + 1808X^3 + 1332X^2 + 480X + 64}{64X^8 + 512X^7 + 1792X^6 + 3584X^5 + 4480X^4 + 3584X^3 + 1792X^2 + 512X + 64}$
3 autosomal genes, additive--------	5 or 6	F_1	$\frac{16}{16X^2 + 32X + 16}$
		F_3	$\frac{19X^6 + 312X^5 + 1602X^4 + 3560X^3 + 3723X^2 + 1440X + 256}{256X^8 + 2048X^7 + 7168X^6 + 14336X^5 + 17920X^4 + 14336X^3 + 7168X^2 + 2048X + 256}$
	4, 5, or 6	F_1	$\frac{16}{16X^2 + 32X + 16}$
		F_3	$\frac{154X^6 + 1680X^5 + 5724X^4 + 8528X^3 + 6090X^2 + 1728X + 256}{256X^8 + 2048X^7 + 7168X^6 + 14336X^5 + 17920X^4 + 14336X^3 + 7168X^2 + 2048X + 256}$
1 sex-linked and 3 autosomal genes, additive--------	8 or 9	F_1	$\frac{256}{256X^2 + 512X + 256}$
		F_3	$\frac{382X^6 + 8832X^5 + 55116X^4 + 138752X^3 + 159438X^2 + 82944X + 16384}{16384X^8 + 131072X^7 + 458752X^6 + 917504X^5 + 1,146,880X^4 + 917504X^3 + 458752X^2 + 131072X + 16384}$
	6, 7, 8, or 9	F_1	$\frac{48X + 32}{32X^2 + 64X + 32}$
		F_3	$\frac{384X^7 + 23122X^6 + 170112X^5 + 425656X^4 + 488192X^3 + 292962X^2 + 97920X + 16384}{16384X^8 + 131072X^7 + 458752X^6 + 917504X^5 + 1,146,880X^4 + 917504X^3 + 458752X^2 + 131072X + 16384}$

[1/] Frequency of nonlethal genotypes in progeny of native and released insects.

Table 2.--Release ratios required for 98- and 99.9-percent suppression in F_1 and F_3 generations of native population overflooded in parental (overwintered) generation with release strain bearing conditional lethal traits

Inheritance of conditional lethal traits in release strain[1/]			Release ratio X required for ≥			
			98-percent suppression in--		99.9-percent suppression in--	
Trait 1	Trait 2	Trait 3	F_1	F_3	F_1	F_3
1 dom.auto.	----	----	49	49	1,000	1,000
2 auto.(3,4)	----	----	49	48	1,000	1,000
3 auto.(5,6)	----	----	49	8	1,000	84
3 auto.(4-6)	----	----	49	36	1,000	1,000
3 auto.+ 1 s.l. (8,9)	----	----	49	5	1,000	36
3 auto.+ 1 s.l. (6-9)	----	----	> 1,000	> 1,000	> 1,000	> 1,000
1 dom.auto.	2 auto.(3,4)	----	49	3	1,000	10
1 dom.auto.	3 auto.(5,6)	----	49	2	1,000	6
1 dom.auto.	3 auto.(4-6)	----	49	3	1,000	9
1 dom.auto.	3 auto.+ 1 s.l. (8,9)	----	49	2	1,000	5
1 dom.auto.	1 dom.auto.	----	49	3	1,000	10
1 dom.auto.	3 auto.+ 1 s.l. (6-9)	----	49	4	1,000	11
2 auto.(3,4)	2 auto.(3,4)	----	49	4	1,000	10
2 auto.(3,4)	3 auto.(5,6)	----	49	3	1,000	6
2 auto.(3,4)	3 auto.(4-6)	----	49	4	1,000	9
2 auto.(3,4)	3 auto.+ 1 s.l. (8,9)	----	49	2	1,000	5
2 auto.(3,4)	3 auto.+ 1 s.l. (6-9)	----	49	4	1,000	11
3 auto.(5,6)	3 auto.(5,6)	----	49	2	1,000	4
3 auto.(5,6)	3 auto.(4-6)	----	49	3	1,000	6
3 auto.(5,6)	3 auto.(4-6)	----	49	4	1,000	9
3 auto.(5,6)	3 auto.+ 1 s.l. (8,9)	----	49	2	1,000	3
3 auto.(5,6)	3 auto.+ 1 s.l. (6-9)	----	49	3	1,000	7
3 auto.(4-6)	3 auto.+ 1 s.l. (8,9)	----	49	2	1,000	5
3 auto.(4-6)	3 auto.+ 1 s.l. (6-9)	----	49	4	1,000	11
3 auto.+ 1 s.l. (8,9)	3 auto.+ 1 s.l. (8,9)	----	49	2	1,000	3
3 auto.+ 1 s.l. (8,9)	3 auto.+ 1 s.l. (6-9)	----	49	2	1,000	5
3 auto.+ 1 s.l. (6-9)	3 auto.+ 1 s.l. (6-9)	----	> 1,000	5	> 1,000	14
1 dom.auto.	1 dom.auto.	1 dom.auto.	49	2	1,000	3
1 dom.auto.	1 dom.auto.	3 auto.(5,6)	49	2	1,000	3
1 dom.auto.	2 auto.(3,4)	3 auto.(4-6)	49	2	1,000	4
1 dom.auto.	2 auto.(3,4)	3 auto.+ 1 s.l.(6-9)	49	2	1,000	4
2 auto.(3,4)	2 auto.(3,4)	2 auto.(3,4)	49	2	1,000	4
2 auto.(3,4)	2 auto.(3,4)	3 auto.+ 1 s.l.(8,9)	49	2	1,000	3
2 auto.(3,4)	3 auto.(5,6)	3 auto.(4-6)	49	2	1,000	3
2 auto.(3,4)	3 auto.(5,6)	3 auto.+ 1 s.l.(6-9)	49	2	1,000	3
3 auto.(5,6)	3 auto.(5,6)	3 auto.(5,6)	49	1	1,000	2
3 auto.(5,6)	3 auto.(4-6)	3 auto.(4-6)	49	2	1,000	3
3 auto.(4-6)	3 auto.(4-6)	3 auto.(4-6)	49	2	1,000	4
3 auto.(4-6)	3 auto.+ 1 s.l. (8,9)	3 auto.+ 1 s.l.(8,9)	49	2	1,000	3
3 auto.+ 1 s.l. (8,9)	3 auto.+ 1 s.l. (8,9)	3 auto.+ 1 s.l.(8,9)	49	1	1,000	2
3 auto.+ 1 s.l. (6-9)	3 auto.+ 1 s.l. (6-9)	3 auto.+ 1 s.l.(6-9)	49	2	1,000	5

[1/] Numbers in parentheses are genotypic values of survivors.

Table 3.--Theoretical population and genotypic trends when native population of 2,000 insects (aa) is overflooded by 198,000 or 396,000 partially sterile insects (AA) during parental, F_1, F_2, and F_3 generations. Matings between partially sterile insects are assumed to yield no offspring

Number released	Sterility	Rate of increase	Generation	Genotype aa	Aa	AA	Total
	Percent						
198,000--	90	Fivefold---	F_1	100	1,980	------	2,080
			F_2	30	1,133	1,005	2,168
			F_3	9	636	1,615	2,260
			F_4	3	355	2,005	2,363
198,000--	80	--do--	F_1	100	3,960	------	4,060
			F_2	107	4,280	3,977	8,364
			F_3	122	4,978	12,646	17,746
			F_4	158	6,625	33,089	39,872
198,000--	90	Tenfold---	F_1	200	3,960	------	4,160
			F_2	235	4,697	4,072	9,004
			F_3	322	6,546	14,275	21,143
			F_4	590	12,255	45,762	58,607
198,000--	80	--do--	F_1	200	7,920	------	8,120
			F_2	840	17,583	15,977	34,400
			F_3	3,991	53,351	110,806	168,148
			F_4	25,685	296,629	813,595	1,135,904
396,000--	90	Fivefold---	F_1	50	1,990	------	2,040
			F_2	14	1,066	1,022	2,102
			F_3	4	565	1,557	2,126
			F_4	1	298	1,872	2,171
396,000--	80	--do--	F_1	50	3,980	------	4,030
			F_2	52	4,141	3,989	8,182
			F_3	56	4,477	12,328	16,861
			F_4	64	5,211	30,514	35,789
396,000--	90	Tenfold	F_1	101	3,980	------	4,081
			F_2	109	4,346	4,038	8,493
			F_3	129	5,170	13,116	18,415
			F_4	178	7,242	35,955	43,375
396,000--	80	--do--	F_1	101	7,960	------	8,061
			F_2	412	16,800	15,994	33,206
			F_3	1,809	42,538	103,891	148,238
			F_4	9,786	173,314	652,111	835,211

Table 4.--Theoretical population and genotypic trends when native population of 2,000 insects (AABB) is overflooded by 198,000 or 396,000 partially sterile insects (aabb) during parental, F_1, F_2, and F_3 generations. Matings between partially sterile insects are assumed to yield no offspring

Number released	Sterility	Rate of increase	Generation	Genotype									
				AABB	AaBB	AABb	AaBb	aaB3	aaBb	AAbb	Aabb	aabb	Total
	Percent												
198,000--	90	Fivefold--	F_1	100	----	----	1,980	----	----	----	----	----	2,080
			F_2	9	15	15	616	6	502	6	502	496	2,166
			F_3	1	4	4	195	4	438	4	438	1,173	2,260
			F_4	0	1	1	61	2	293	2	293	1,709	2,362
198,000--	80	--do--	F_1	100	----	----	3,960	----	----	----	----	----	4,060
			F_2	29	53	53	2,238	24	1,989	24	1,989	1,964	8,365
			F_3	10	50	50	1,498	62	3,431	62	3,431	9,153	17,747
			F_4	4	44	44	1,278	110	5,304	110	5,304	27,676	39,873
198,000--	90	Tenfold---	F_1	200	----	----	3,960	----	----	----	----	----	4,160
			F_2	70	117	117	2,545	48	2,036	48	2,036	1,988	9,005
			F_3	33	140	140	2,244	150	4,162	150	4,162	9,964	21,144
			F_4	25	192	192	3,054	374	9,007	374	9,007	36,382	58,607
198,000--	80	--do--	F_1	200	----	----	7,920	----	----	----	----	----	8,120
			F_2	231	419	419	9,176	190	7,988	190	7,988	7,798	34,399
			F_3	373	1694	1694	18,459	1,925	33,197	1,915	33,197	75,684	168,148
			F_4	1,219	8,754	8,754	87,299	15,712	200,575	15,712	200,575	597,305	1,135,905
396,000--	90	Fivefold--	F_1	50	----	----	1,990	----	----	----	----	----	2,040
			F_2	4	7	7	558	3	501	3	501	498	2,082
			F_3	0	1	1	158	2	406	2	406	1,149	2,126
			F_4	0	0	0	44	1	254	1	254	1,618	2,171
396,000--	80	--do--	F_1	50	----	----	3,980	----	----	----	----	----	4,030
			F_2	14	26	26	2,120	12	1,995	12	1,995	1,982	8,182
			F_3	4	22	22	1,239	30	3,216	30	3,216	9,083	16,861
			F_4	1	16	16	840	46	4,355	46	4,355	26,112	35,788
396,000--	90	Tenfold---	F_1	100	----	----	3,980	----	----	----	----	----	4,081
			F_2	30	54	54	2,273	25	2,019	25	20,191	1,994	8,494
			F_3	11	53	53	1,557	66	3,560	66	3,560	9,490	18,414
			F_4	5	49	49	1,405	123	5,788	123	5,788	30,043	43,375
396,000--	80	--do--	F_1	100	----	----	7,960	----	----	----	----	----	8,061
			F_2	108	206	206	8,597	98	7,997	98	7,997	7,899	33,206
			F_3	141	719	719	13,040	939	28,768	939	28,768	74,183	148,237
			F_4	313	2,876	2,876	41,335	6,597	129,103	6,596	129,103	516,410	835,209

Table 5.--Theoretical population and genotypic trends when native population of 2,000 insects (AABBDD) is overflooded by 198,000 or 396,000 partially sterile insects (aabbdd) during parental, F_1, F_2, and F_3 generations. Matings between partially sterile insects are assumed to yield no offspring

Genotype	198,000 released with indicated sterility, increase, and generation															
	90 percent, fivefold				80 percent, fivefold				90 percent, tenfold				80 percent, tenfold			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
AABBDD----	100	3	0	0	100	9	1	0	200	24	4	2	200	69	45	81
AABBDd----	----	4	0	0	----	15	4	1	----	34	15	9	----	114	169	467
AABbDD----	----	4	0	0	----	15	4	1	----	34	15	9	----	114	169	467
AaBBDD----	----	4	0	0	----	15	4	1	----	34	15	9	----	114	169	467
AABBdd----	----	2	0	0	----	6	5	3	----	12	13	14	----	48	159	671
AAbbDD----	----	2	0	0	----	6	5	3	----	12	13	14	----	48	159	671
aaBBDD----	----	2	0	0	----	6	5	3	----	12	13	14	----	48	159	671
AABbDd----	----	7	2	0	----	27	21	13	----	58	62	66	----	209	736	3,135
AaBBDd----	----	7	2	0	----	27	21	13	----	58	62	66	----	209	736	3,135
AaBbDD----	----	7	2	0	----	27	21	13	----	58	62	66	----	209	736	3,135
AABbdd----	----	3	2	0	----	12	25	30	----	24	62	116	----	95	789	5,151
AAbbDd----	----	3	2	0	----	12	25	30	----	24	62	116	----	95	789	5,151
AaBBdd----	----	3	2	0	----	12	25	30	----	24	62	116	----	95	789	5,151
AabbDD----	----	3	2	0	----	12	25	30	----	24	62	116	----	95	789	5,151
aaBBDd----	----	3	2	0	----	12	25	30	----	24	62	116	----	95	789	5,151
aaBbDD----	----	3	2	0	----	12	25	30	----	24	62	116	----	95	789	5,151
AaBbDd----	1,980	357	67	12	3,960	1,217	496	289	3,960	1,468	865	884	7,920	4,972	7,006	28,092
AAbbdd----	----	2	2	1	----	6	33	77	----	12	74	244	----	48	976	9,890
aaBBdd----	----	2	2	1	----	6	33	77	----	12	74	244	----	48	976	9,890
aabbDD----	----	2	2	1	----	6	33	77	----	12	74	244	----	48	976	9,890
AaBbdd----	----	251	126	48	----	994	981	976	----	1,018	1,316	211	----	3,994	10,717	56,072
AabbDd----	----	251	126	48	----	994	981	976	----	1,018	1,316	211	----	3,994	10,717	56,072
aaBbDd----	----	251	126	48	----	994	981	976	----	1,018	1,316	211	----	3,994	10,717	56,072
Aabbdd----	----	248	310	245	----	982	2,425	4,298	----	994	2,783	6,784	----	3,899	21,692	139,353
aaBbdd----	----	248	310	245	----	982	2,425	4,298	----	994	2,783	6,784	----	3,899	21,692	139,353
aabbDd----	----	248	310	245	----	982	2,425	4,298	----	994	2,783	6,784	----	3,899	21,692	139,353
aabbdd----	----	246	860	1,463	----	976	6,695	23,300	----	982	7,107	29,355	----	3,851	53,062	448,066
Total----	2,080	2,166	2,260	2,362	4,060	8,365	17,747	39,873	4,160	9,005	21,144	58,607	8,120	34,399	168,148	1,135,912

Table 5.-- Theoretical population and genotypic trends when native population of 2,000 insects (AABBDD) is overflooded by 198,000 or 396,000 partially sterile insects (aabbdd) during parental, F_1, F_2, and F_3 generations. Matings between partially sterile insects are assumed to yield no offspring--Continued

Genotype	396,000 released with indicated sterility, increase, and generation															
	90 percent, fivefold				80 percent, fivefold				90 percent, tenfold				80 percent, tenfold			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
AABBDD----	50	1	0	0	50	4	0	0	101	9	1	0	101	30	13	14
AABBDd----	----	2	0	0	----	7	2	0	----	15	5	2	----	54	60	104
AABbDD----	----	2	0	0	----	7	2	0	----	15	5	2	----	54	60	104
AaBBDD----	----	2	0	0	----	7	2	0	----	15	5	2	----	54	60	104
AABBdd----	----	1	0	0	----	3	2	1	----	6	5	3	----	25	68	195
AAbbDD----	----	1	0	0	----	3	2	1	----	6	5	3	----	25	68	195
aaBBDD----	----	1	0	0	----	3	2	1	----	6	5	3	----	25	68	195
AABbDd----	----	3	1	0	----	13	9	4	----	27	22	15	----	103	299	892
AaBBDd----	----	3	1	0	----	13	9	4	----	27	22	15	----	103	299	892
AaBbDD----	----	3	1	0	----	13	9	4	----	27	22	15	----	103	299	892
AABbdd----	----	2	1	0	----	6	12	11	----	12	26	33	----	49	370	1,879
AAbbDd----	----	2	1	0	----	6	12	11	----	12	26	33	----	49	370	1,879
AaBBdd----	----	2	1	0	----	6	12	11	----	12	26	33	----	49	370	1,879
AabbDD----	----	2	1	0	----	6	12	11	----	12	26	33	----	49	370	1,879
aaBBDd----	----	2	1	0	----	6	12	11	----	12	26	33	----	49	370	1,879
aaBbDD----	----	2	1	0	----	6	12	11	----	12	26	33	----	49	370	1,879
AaBbDd----	1,990	304	48	7	3,980	1,110	366	155	3,980	1,236	517	319	7,960	4,495	4,346	11,066
AAbbdd----	----	1	1	1	----	3	16	34	----	6	35	87	----	25	501	4,522
aaBBdd----	----	1	1	1	----	3	16	34	----	6	35	87	----	25	501	4,522
aabbDD----	----	1	1	1	----	3	16	34	----	6	35	87	----	25	501	4,522
AaBbdd----	----	251	109	37	----	997	864	681	----	1,010	1,018	1,071	----	3,999	8,396	29,377
AabbDd----	----	251	109	37	----	997	864	681	----	1,010	1,018	1,071	----	3,999	8,396	29,377
aaBbDd----	----	251	109	37	----	997	864	681	----	1,010	1,018	1,071	----	3,999	8,396	29,377
Aabbdd----	----	249	296	217	----	991	2,340	3,663	----	997	2,516	4,684	----	3,950	20,003	97,847
aaBbdd----	----	249	296	217	----	991	2,340	3,663	----	997	2,516	4,684	----	3,950	20,003	97,847
aabbDd----	----	249	296	217	----	991	2,340	3,663	----	997	2,516	4,684	----	3,950	20,003	97,847
aabbdd----	----	248	852	1,400	----	988	6,727	22,415	----	991	6,940	25,272	----	3,925	53,680	414,041
Total---	2,040	2,082	2,126	2,171	4,030	8,182	16,861	35,788	4,081	8,494	18,414	43,375	8,061	33,206	148,237	835,209

Table 6.--Theoretical population and genotypic trends when native population of 2,000 insects (AABBDDEE) is overflooded by 198,000 or 396,000 partially sterile insects (aabbddee) during parental, F_1, F_2, and F_3 generations. Matings between partially sterile insects are assumed to yield no offspring

Genotype	198,000 released with indicated sterility, increase, and generation															
	90 percent, fivefold				80 percent, fivefold				90 percent, tenfold				80 percent, tenfold			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
[illegible]	1	0	0	100	3	0	0	200	10	1	0	200	23	7	7	
[illegible]	1	0	0	----	4	0	0	----	11	2	1	----	33	21	34	
[illegible]	1	0	0	----	4	0	0	----	11	2	1	----	33	21	34	
[illegible]	1	0	0	----	4	0	0	----	11	2	1	----	33	21	34	
[illegible]	1	0	0	----	4	0	0	----	11	2	1	----	33	21	34	
[illegible]	0	0	0	----	2	0	0	----	3	1	1	----	12	16	40	
[illegible]	0	0	0	----	2	0	0	----	3	1	1	----	12	16	40	
[illegible]	0	0	0	----	2	0	0	----	3	1	1	----	12	16	40	
[illegible]	0	0	0	----	2	0	0	----	3	1	1	----	12	16	40	
[illegible]	2	0	0	----	7	2	0	----	17	7	4	----	57	78	185	
[illegible]	2	0	0	----	7	2	0	----	17	7	4	----	57	78	185	
[illegible]	2	0	0	----	7	2	0	----	17	7	4	----	57	78	185	
[illegible]	2	0	0	----	7	2	0	----	17	7	4	----	57	78	185	
[illegible]	2	0	0	----	7	2	0	----	17	7	4	----	57	78	185	
[illegible]	2	0	0	----	7	2	0	----	17	7	4	----	57	78	185	
[illegible]	1	0	0	----	3	2	1	----	6	6	5	----	24	69	25	
[illegible]	1	0	0	----	3	2	1	----	6	6	5	----	24	69	25	
[illegible]	1	0	0	----	3	2	1	----	6	6	5	----	24	69	25	
[illegible]	1	0	0	----	3	2	1	----	6	6	5	----	24	69	25	
[illegible]	1	0	0	----	3	2	1	----	6	6	5	----	24	69	25	
[illegible]	1	0	0	----	3	2	1	----	6	6	5	----	24	69	25	
[illegible]	1	0	0	----	3	2	1	----	6	6	5	----	24	69	25	
[illegible]	1	0	0	----	3	2	1	----	6	6	5	----	24	69	25	
[illegible]	1	0	0	----	3	2	1	----	6	6	5	----	24	69	25	
[illegible]	1	0	0	----	3	2	1	----	6	6	5	----	24	69	25	
[illegible]	1	0	0	----	3	2	1	----	6	6	5	----	24	69	25	
[illegible]	4	1	0	----	13	9	4	----	29	29	24	----	105	328	1,172	
[illegible]	4	1	0	----	13	9	4	----	29	29	24	----	105	328	1,172	
[illegible]	4	1	0	----	13	9	4	----	29	29	24	----	105	328	1,172	
[illegible]	4	1	0	----	13	9	4	----	29	29	24	----	105	328	1,172	
[illegible]	0	0	0	----	2	2	2	----	3	6	8	----	12	74	383	
[illegible]	0	0	0	----	2	2	2	----	3	6	8	----	12	74	383	
[illegible]	0	0	0	----	2	2	2	----	3	6	8	----	12	74	383	
[illegible]	0	0	0	----	2	2	2	----	3	6	8	----	12	74	383	
[illegible]	0	0	0	----	2	2	2	----	3	6	8	----	12	74	383	
[illegible]	0	0	0	----	2	2	2	----	3	6	8	----	12	74	383	
[illegible]	2	1	0	----	6	10	8	----	12	27	38	----	48	330	1,778	
[illegible]	2	1	0	----	6	10	8	----	12	27	38	----	48	330	1,778	
[illegible]	2	1	0	----	6	10	8	----	12	27	38	----	48	330	1,778	
[illegible]	2	1	0	----	6	10	8	----	12	27	38	----	48	330	1,778	
[illegible]	2	1	0	----	6	10	8	----	12	27	38	----	48	330	1,778	
[illegible]	2	1	0	----	6	10	8	----	12	27	38	----	48	330	1,778	
[illegible]	2	1	0	----	6	10	8	----	12	27	38	----	48	330	1,778	
[illegible]	2	1	0	----	6	10	8	----	12	27	38	----	48	330	1,778	
[illegible]	2	1	0	----	6	10	8	----	12	27	38	----	48	330	1,778	
[illegible]	2	1	0	----	6	10	8	----	12	27	38	----	48	330	1,778	
[illegible]	1	1	0	----	3	13	20	----	6	30	73	----	24	390	3,125	
[illegible]	1	1	0	----	3	13	20	----	6	30	73	----	24	390	3,125	
[illegible]	1	1	0	----	3	13	20	----	6	30	73	----	24	390	3,125	
[illegible]	1	1	0	----	3	13	20	----	6	30	73	----	24	390	3,125	
[illegible]	1	1	0	----	3	13	20	----	6	30	73	----	24	390	3,125	
[illegible]	1	1	0	----	3	13	20	----	6	30	73	----	24	390	3,125	
[illegible]	1	1	0	----	3	13	20	----	6	30	73	----	24	390	3,125	
[illegible]	1	1	0	----	3	13	20	----	6	30	73	----	24	390	3,125	
[illegible]	1	1	0	----	3	13	20	----	6	30	73	----	24	390	3,125	
[illegible]	1	1	0	----	3	13	20	----	6	30	73	----	24	390	3,125	
[illegible]	228	26	3	3,960	707	185	75	3,960	93	375	286	7,920	2,870	2,907	9,675	
[illegible]	0	1	1	----	2	18	55	----	3	38	162	----	12	512	6,382	
[illegible]	0	1	1	----	2	18	55	----	3	38	162	----	12	512	6,382	
[illegible]	0	1	1	----	2	18	55	----	3	38	162	----	12	512	6,382	
[illegible]	0	1	1	----	2	18	55	----	3	38	162	----	12	512	6,382	
[illegible]	126	40	9	----	497	303	210	----	509	461	574	----	1,997	3,771	17,244	
[illegible]	126	40	9	----	497	303	210	----	509	461	574	----	1,997	3,771	17,244	
[illegible]	126	40	9	----	497	303	210	----	509	461	574	----	1,997	3,771	17,244	
[illegible]	126	40	9	----	497	303	210	----	509	461	574	----	1,997	3,771	17,244	
[illegible]	124	86	39	----	491	668	758	----	497	829	1,495	----	1,950	6,616	37,050	
[illegible]	124	86	39	----	491	668	758	----	497	829	1,495	----	1,950	6,616	37,050	
[illegible]	124	86	39	----	491	668	758	----	497	829	1,495	----	1,950	6,616	37,050	
[illegible]	124	86	39	----	491	668	758	----	497	829	1,495	----	1,950	6,616	37,050	
[illegible]	124	86	39	----	491	668	758	----	497	829	1,495	----	1,950	6,616	37,050	
[illegible]	124	86	39	----	491	668	758	----	497	829	1,495	----	1,950	6,616	37,050	
[illegible]	123	224	206	----	488	1,744	3,520	----	491	1,924	5,216	----	1,926	14,686	99,178	
[illegible]	123	224	206	----	488	1,744	3,520	----	491	1,924	5,216	----	1,926	14,686	99,178	
[illegible]	123	224	206	----	488	1,744	3,520	----	491	1,924	5,216	----	1,926	14,686	99,178	
[illegible]	123	224	206	----	488	1,744	3,520	----	491	1,924	5,216	----	1,926	14,686	99,178	
aabbddee---	123	635	1,257	----	487	4,933	19,725	----	488	5,144	23,976	----	1,914	37,818	342,503	
Total----	2,080	2,166	2,260	2,362	4,060	8,365	17,747	39,873	4,160	9,005	21,143	58,606	8,120	34,399	168,147	1,135,904

Table 6.--Theoretical population and genotypic trends when native population of 2,000 insects (AABBDDEE) is overflooded by 198,000 or 396,000 partially sterile insects (aabbddee) during parental, F_1, F_2, and F_3 generations. Matings between partially sterile insects are assumed to yield no offspring--Continued

Genotype	396,000 released with indicated sterility, increase, and generation															
	90 percent, fivefold				80 percent, fivefold				90 percent, tenfold				80 percent, tenfold			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
AABBDDEE---	50	0	0	0	50	1	0	0	101	3	0	0	101	9	2	1
AABBDDEe---	----	1	0	0	----	2	0	0	----	4	0	0	----	15	6	5
AABBDdEE---	----	1	0	0	----	2	0	0	----	4	0	0	----	15	6	5
AABbDDEE---	----	1	0	0	----	2	0	0	----	4	0	0	----	15	6	5
AaBBDDEE---	----	1	0	0	----	2	0	0	----	4	0	0	----	15	6	5
AABBDDee---	----	0	0	0	----	1	0	0	----	2	0	0	----	6	6	8
AABBddEE---	----	0	0	0	----	1	0	0	----	2	0	0	----	6	6	8
AAbbDDEE---	----	0	0	0	----	1	0	0	----	2	0	0	----	6	6	8
aaBBDDEE---	----	0	0	0	----	1	0	0	----	2	0	0	----	6	6	8
AABBDdEe---	----	1	0	0	----	3	1	0	----	7	2	1	----	27	26	36
AABbDDEe---	----	1	0	0	----	3	1	0	----	7	2	1	----	27	26	36
AABbDdEE---	----	1	0	0	----	3	1	0	----	7	2	1	----	27	26	36
AaBBDDEe---	----	1	0	0	----	3	1	0	----	7	2	1	----	27	26	36
AaBBDdEE---	----	1	0	0	----	3	1	0	----	7	2	1	----	27	26	36
AaBbDDEE---	----	1	0	0	----	3	1	0	----	7	2	1	----	27	26	36
AABBDdee---	----	0	0	0	----	2	1	0	----	3	2	1	----	12	28	63
AABBddEe---	----	0	0	0	----	2	1	0	----	3	2	1	----	12	28	63
AABbDDee---	----	0	0	0	----	2	1	0	----	3	2	1	----	12	28	63
AABbddEe---	----	0	0	0	----	2	1	0	----	3	2	1	----	12	28	63
AAbbDDEe---	----	0	0	0	----	2	1	0	----	3	2	1	----	12	28	63
AAbbDdEE---	----	0	0	0	----	2	1	0	----	3	2	1	----	12	28	63
AaBBDDee---	----	0	0	0	----	2	1	0	----	3	2	1	----	12	28	63
AaBBddEe---	----	0	0	0	----	2	1	0	----	3	2	1	----	12	28	63
AabbDDEE---	----	0	0	0	----	2	1	0	----	3	2	1	----	12	28	63
aaBBDDEe---	----	0	0	0	----	2	1	0	----	3	2	1	----	12	28	63
aaBBDdEE---	----	0	0	0	----	2	1	0	----	3	2	1	----	12	28	63
aaBbDDEE---	----	0	0	0	----	2	1	0	----	3	2	1	----	12	28	63
AABbDdEe---	----	2	0	0	----	6	4	1	----	14	9	5	----	51	125	291
AaBBDdEe---	----	2	0	0	----	6	4	1	----	14	9	5	----	51	125	291
AaBbDDEe---	----	2	0	0	----	6	4	1	----	14	9	5	----	51	125	291
AaBbDdEE---	----	2	0	0	----	6	4	1	----	14	9	5	----	51	125	291
AABBddee---	----	0	0	0	----	1	1	1	----	2	2	2	----	6	35	125
AAbbDDee---	----	0	0	0	----	1	1	1	----	2	2	2	----	6	35	125
AAbbddEe---	----	0	0	0	----	1	1	1	----	2	2	2	----	6	35	125
aabbDDee---	----	0	0	0	----	1	1	1	----	2	2	2	----	6	35	125
aaBBddEe---	----	0	0	0	----	1	1	1	----	2	2	2	----	6	35	125
aabbDDEe---	----	0	0	0	----	1	1	1	----	2	2	2	----	6	35	125
AABbDdee---	----	1	0	0	----	3	5	3	----	6	11	9	----	25	148	565
AABbddEe---	----	1	0	0	----	3	5	3	----	6	11	9	----	25	148	565
AAbbDdEe---	----	1	0	0	----	3	5	3	----	6	11	9	----	25	148	565
AaBBDdee---	----	1	0	0	----	3	5	3	----	6	11	9	----	25	148	565
AaBbDdEe---	----	1	0	0	----	3	5	3	----	6	11	9	----	25	148	565
AaBbDDee---	----	1	0	0	----	3	5	3	----	6	11	9	----	25	148	565
AaBbddEe---	----	1	0	0	----	3	5	3	----	6	11	9	----	25	148	565
AabbDDEe---	----	1	0	0	----	3	5	3	----	6	11	9	----	25	148	565
AabbDdEE---	----	1	0	0	----	3	5	3	----	6	11	9	----	25	148	565
aaBBDdEe---	----	1	0	0	----	3	5	3	----	6	11	9	----	25	148	565
aaBbDDEe---	----	1	0	0	----	3	5	3	----	6	11	9	----	25	148	565
aaBbDdEE---	----	1	0	0	----	3	5	3	----	6	11	9	----	25	148	565
AABbddee---	----	0	0	0	----	2	6	8	----	3	14	23	----	12	194	1,252
AAbbDdee---	----	0	0	0	----	2	6	8	----	3	14	23	----	12	194	1,252
AAbbddEe---	----	0	0	0	----	2	6	8	----	3	14	23	----	12	194	1,252
AaBBddee---	----	0	0	0	----	2	6	8	----	3	14	23	----	12	194	1,252
AaBbDDee---	----	0	0	0	----	2	6	8	----	3	14	23	----	12	194	1,252
AaBbddEe---	----	0	0	0	----	2	6	8	----	3	14	23	----	12	194	1,252
AabbDDEe---	----	0	0	0	----	2	6	8	----	3	14	23	----	12	194	1,252
AabbDdEE---	----	0	0	0	----	2	6	8	----	3	14	23	----	12	194	1,252
aaBBDdEe---	----	0	0	0	----	2	6	8	----	3	14	23	----	12	194	1,252
aaBbDDEe---	----	0	0	0	----	2	6	8	----	3	14	23	----	12	194	1,252
aaBbDdEE---	----	0	0	0	----	2	6	8	----	3	14	23	----	12	194	1,252
AaBbDdEe---	1,990	177	16	1	3,980	605	119	33	3,980	717	193	84	7,960	2,445	1,591	3,242
AAbbddee---	----	0	1	0	----	1	9	25	----	2	19	62	----	6	272	3,145
aaBBddee---	----	0	1	0	----	1	9	25	----	2	19	62	----	6	272	3,145
aabbDDee---	----	0	1	0	----	1	9	25	----	2	19	62	----	6	272	3,145
aabbddEE---	----	0	1	0	----	1	9	25	----	2	19	62	----	6	272	3,145
AaBbDdee---	----	125	31	6	----	499	244	121	----	505	315	231	----	200	2,630	7,532
AaBbddEe---	----	125	31	6	----	499	244	121	----	505	315	231	----	200	2,630	7,532
AabbDdEe---	----	125	31	6	----	499	244	121	----	505	315	231	----	200	2,630	7,532
aaBbDdEe---	----	125	31	6	----	499	244	121	----	505	315	231	----	200	2,630	7,532
AaBbddee---	----	125	78	31	----	496	616	557	----	499	693	830	----	1,975	5,618	21,280
AabbDdee---	----	125	78	31	----	496	616	557	----	499	693	830	----	1,975	5,618	21,280
AabbddEe---	----	125	78	31	----	496	616	557	----	499	693	830	----	1,975	5,618	21,280
aaBbDdee---	----	125	78	31	----	496	616	557	----	499	693	830	----	1,975	5,618	21,280
aaBbddEe---	----	125	78	31	----	496	616	557	----	499	693	830	----	1,975	5,618	21,280
aabbDdEe---	----	125	78	31	----	496	616	557	----	499	693	830	----	1,975	5,618	21,280
Aabbddee---	----	124	217	186	----	494	1,718	3,097	----	496	1,809	3,831	----	1,963	14,190	75,315
aaBbddee---	----	124	217	186	----	494	1,718	3,097	----	496	1,809	3,831	----	1,963	14,190	75,315
aabbDdee---	----	124	217	186	----	494	1,718	3,097	----	496	1,809	3,831	----	1,963	14,190	75,315
aabbddEe---	----	124	217	186	----	494	1,718	3,097	----	496	1,809	3,831	----	1,963	14,190	75,315
aabbddee---	----	124	634	1,214	----	493	5,000	19,293	----	494	5,112	21,379	----	1,956	39,218	335,581
Total------	2,040	2,082	2,126	2,171	4,030	8,182	16,861	35,788	4,080	8,494	18,414	43,374	8,060	33,206	148,238	835,210

Table 7.--Theoretical population and genotypic trends of male insects when native population of 2,000 insects (3 autosomal genes BBDDEe plus 1 sex-linked gene AA; female is heterogametic) is overflooded by 198,000 or 396,000 partially sterile insects (aabbddee and a-bbddee) during parental, F_1, F_2, and F_3 generations. Matings between partially sterile insects are assumed to yield no offspring

Genotype	198,000 released with indicated sterility, increase, and generation															
	90 percent, fivefold				80 percent, fivefold				90 percent, tenfold				80 percent, tenfold			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
[illegible]	-	1	0	0	50	1	0	0	100	5	0	0	100	12	4	4
[illegible]	----	1	0	0	----	2	0	0	----	5	1	0	----	17	11	17
[illegible]	----	1	0	0	----	2	0	0	----	5	1	0	----	17	11	17
[illegible]	----	1	0	0	----	2	0	0	----	5	1	0	----	17	11	17
[illegible]	----	1	0	0	----	2	0	0	----	5	1	0	----	17	11	17
[illegible]	----	0	0	0	----	1	0	0	----	2	1	0	----	6	8	20
[illegible]	----	0	0	0	----	1	0	0	----	2	1	0	----	6	8	20
[illegible]	----	0	0	0	----	1	0	0	----	2	1	0	----	6	8	20
[illegible]	----	0	0	0	----	1	0	0	----	2	1	0	----	6	8	20
[illegible]	----	1	0	0	----	4	1	0	----	9	4	2	----	29	39	92
[illegible]	----	1	0	0	----	4	1	0	----	9	4	2	----	29	39	92
[illegible]	----	1	0	0	----	4	1	0	----	9	4	2	----	29	39	92
[illegible]	----	1	0	0	----	4	1	0	----	9	4	2	----	29	39	92
[illegible]	----	1	0	0	----	4	1	0	----	9	4	2	----	29	39	92
[illegible]	----	1	0	0	----	4	1	0	----	9	4	2	----	29	39	92
[illegible]	----	0	0	0	----	2	1	0	----	3	3	2	----	12	35	123
[illegible]	----	0	0	0	----	2	1	0	----	3	3	2	----	12	35	123
[illegible]	----	0	0	0	----	2	1	0	----	3	3	2	----	12	35	123
[illegible]	----	0	0	0	----	2	1	0	----	3	3	2	----	12	35	123
[illegible]	----	0	0	0	----	2	1	0	----	3	3	2	----	12	35	123
[illegible]	----	0	0	0	----	2	1	0	----	3	3	2	----	12	35	123
[illegible]	----	0	0	0	----	2	1	0	----	3	3	2	----	12	35	123
[illegible]	----	0	0	0	----	2	1	0	----	3	3	2	----	12	35	123
[illegible]	----	0	0	0	----	2	1	0	----	3	3	2	----	12	35	123
[illegible]	----	0	0	0	----	2	1	0	----	3	3	2	----	12	35	123
[illegible]	----	0	0	0	----	2	1	0	----	3	3	2	----	12	35	123
[illegible]	----	2	0	0	----	7	4	2	----	15	14	12	----	52	164	581
[illegible]	----	2	0	0	----	7	4	2	----	15	14	12	----	52	164	581
[illegible]	----	2	0	0	----	7	4	2	----	15	14	12	----	52	164	581
[illegible]	----	2	0	0	----	7	4	2	----	15	14	12	----	52	164	581
[illegible]	----	0	0	0	----	1	1	1	----	2	3	4	----	6	37	190
[illegible]	----	0	0	0	----	1	1	1	----	2	3	4	----	6	37	190
[illegible]	----	0	0	0	----	1	1	1	----	2	3	4	----	6	37	190
[illegible]	----	0	0	0	----	1	1	1	----	2	3	4	----	6	37	190
[illegible]	----	0	0	0	----	1	1	1	----	2	3	4	----	6	37	190
[illegible]	----	0	0	0	----	1	1	1	----	2	3	4	----	6	37	190
[illegible]	----	1	0	0	----	3	5	4	----	6	13	19	----	24	165	881
[illegible]	----	1	0	0	----	3	5	4	----	6	13	19	----	24	165	881
[illegible]	----	1	0	0	----	3	5	4	----	6	13	19	----	24	165	881
[illegible]	----	1	0	0	----	3	5	4	----	6	13	19	----	24	165	881
[illegible]	----	1	0	0	----	3	5	4	----	6	13	19	----	24	165	881
[illegible]	----	1	0	0	----	3	5	4	----	6	13	19	----	24	165	881
[illegible]	----	1	0	0	----	3	5	4	----	6	13	19	----	24	165	881
[illegible]	----	1	0	0	----	3	5	4	----	6	13	19	----	24	165	881
[illegible]	----	1	0	0	----	3	5	4	----	6	13	19	----	24	165	881
[illegible]	----	1	0	0	----	3	5	4	----	6	13	19	----	24	165	881
[illegible]	----	0	0	0	----	2	6	10	----	3	15	36	----	12	195	1,549
[illegible]	----	0	0	0	----	2	6	10	----	3	15	36	----	12	195	1,549
[illegible]	----	0	0	0	----	2	6	10	----	3	15	36	----	12	195	1,549
[illegible]	----	0	0	0	----	2	6	10	----	3	15	36	----	12	195	1,549
[illegible]	----	0	0	0	----	2	6	10	----	3	15	36	----	12	195	1,549
[illegible]	----	0	0	0	----	2	6	10	----	3	15	36	----	12	195	1,549
[illegible]	----	0	0	0	----	2	6	10	----	3	15	36	----	12	195	1,549
[illegible]	----	0	0	0	----	2	6	10	----	3	15	36	----	12	195	1,549
[illegible]	----	0	0	0	----	2	6	10	----	3	15	36	----	12	195	1,549
[illegible]	----	0	0	0	----	2	6	10	----	3	15	36	----	12	195	1,549
[illegible]	----	0	0	0	----	2	6	10	----	3	15	36	----	12	195	1,549
[illegible]	-	114	13	2	1,980	353	92	38	1,980	465	188	144	3,960	1,435	1,453	4,839
[illegible]	----	0	1	0	----	1	9	28	----	2	19	81	----	6	256	3,163
[illegible]	----	0	1	0	----	1	9	28	----	2	19	81	----	6	256	3,163
[illegible]	----	0	1	0	----	1	9	28	----	2	19	81	----	6	256	3,163
[illegible]	----	0	1	0	----	1	9	28	----	2	19	81	----	6	256	3,163
[illegible]	----	63	20	5	----	249	151	105	----	254	231	289	----	999	1,886	8,652
[illegible]	----	63	20	5	----	249	151	105	----	254	231	289	----	999	1,886	8,652
[illegible]	----	63	20	5	----	249	151	105	----	254	231	289	----	999	1,886	8,652
[illegible]	----	63	20	5	----	249	151	105	----	254	231	289	----	999	1,886	8,652
[illegible]	----	62	43	19	----	246	334	381	----	248	414	755	----	975	3,308	18,691
[illegible]	----	62	43	19	----	246	334	381	----	248	414	755	----	975	3,308	18,691
[illegible]	----	62	43	19	----	246	334	381	----	248	414	755	----	975	3,308	18,691
[illegible]	----	62	43	19	----	246	334	381	----	248	414	755	----	975	3,308	18,691
[illegible]	----	62	43	19	----	246	334	381	----	248	414	755	----	975	3,308	18,691
[illegible]	----	62	43	19	----	246	334	381	----	248	414	755	----	975	3,308	18,691
[illegible]	----	62	112	103	----	244	872	1,773	----	245	962	2,643	----	963	7,343	50,499
[illegible]	----	62	112	103	----	244	872	1,773	----	245	962	2,643	----	963	7,343	50,499
[illegible]	----	62	112	103	----	244	872	1,773	----	245	962	2,643	----	963	7,343	50,499
[illegible]	----	62	112	103	----	244	872	1,773	----	245	962	2,643	----	963	7,343	50,499
aabbddee	----	61	348	832	----	243	2,700	12,847	----	244	281	15,140	----	957	20,540	202,385
Total	1,040	1,083	1,160	1,386	2,030	4,182	9,107	22,987	2,080	4,502	10,805	32,644	4,060	17,200	85,703	603,420

Table 7.--Theoretical population and genotypic trends of male insects when native population of 2,000 insects (3 autosomal genes BBDDEE plus 1 sex-linked gene AA; female is heterogametic) is overflooded by 198,000 or 396,000 partially sterile insects (aabbddee and a-bbddee) during parental, F_1, F_2, and F_3 generations. Matings between partially sterile insects are assumed to yield no offspring--Continued

Genotype	396,000 released with indicated sterility, increase, and generation															
	90 percent, fivefold				80 percent, fivefold				90 percent, tenfold				80 percent, tenfold			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
AABBDDEE---	25	0	0	0	25	1	0	0	50	2	0	0	50	4	1	0
AABBDDEe---	----	0	0	0	----	1	0	0	----	2	0	0	----	7	3	3
AABBDdEE---	----	0	0	0	----	1	0	0	----	2	0	0	----	7	3	3
AABbDDEE---	----	0	0	0	----	1	0	0	----	2	0	0	----	7	3	3
AaBBDDEE---	----	0	0	0	----	1	0	0	----	2	0	0	----	7	3	3
AABBDDee---	----	0	0	0	----	0	0	0	----	1	0	0	----	3	3	4
AABBddEE---	----	0	0	0	----	0	0	0	----	1	0	0	----	3	3	4
AAbbDDEE---	----	0	0	0	----	0	0	0	----	1	0	0	----	3	3	4
aaBBDDEE---	----	0	0	0	----	0	0	0	----	1	0	0	----	3	3	4
AABBDdEe---	----	0	0	0	----	2	0	0	----	4	1	0	----	13	13	18
AABbDDEe---	----	0	0	0	----	2	0	0	----	4	1	0	----	13	13	18
AABbDdEE---	----	0	0	0	----	2	0	0	----	4	1	0	----	13	13	18
AaBBDDEe---	----	0	0	0	----	2	0	0	----	4	1	0	----	13	13	18
AaBBDdEE---	----	0	0	0	----	2	0	0	----	4	1	0	----	13	13	18
AaBbDDEE---	----	0	0	0	----	2	0	0	----	4	1	0	----	13	13	18
AABBDdee---	----	0	0	0	----	1	0	0	----	2	1	0	----	6	14	31
AABBddEe---	----	0	0	0	----	1	0	0	----	2	1	0	----	6	14	31
AABbDDee---	----	0	0	0	----	1	0	0	----	2	1	0	----	6	14	31
AABbddEe---	----	0	0	0	----	1	0	0	----	2	1	0	----	6	14	31
AAbbDDEe---	----	0	0	0	----	1	0	0	----	2	1	0	----	6	14	31
AAbbDdEE---	----	0	0	0	----	1	0	0	----	2	1	0	----	6	14	31
AaBBDDee---	----	0	0	0	----	1	0	0	----	2	1	0	----	6	14	31
AaBBddEE---	----	0	0	0	----	1	0	0	----	2	1	0	----	6	14	31
AaBbDDEE---	----	0	0	0	----	1	0	0	----	2	1	0	----	6	14	31
aaBBDDEe---	----	0	0	0	----	1	0	0	----	2	1	0	----	6	14	31
aaBBDdEE---	----	0	0	0	----	1	0	0	----	2	1	0	----	6	14	31
aaBbDDEE---	----	0	0	0	----	1	0	0	----	2	1	0	----	6	14	31
AABbDdEe---	----	1	0	0	----	3	2	1	----	7	5	2	----	26	62	145
AaBBDdEe---	----	1	0	0	----	3	2	1	----	7	5	2	----	26	62	145
AaBbDDEe---	----	1	0	0	----	3	2	1	----	7	5	2	----	26	62	145
AaBbDdEE---	----	1	0	0	----	3	2	1	----	7	5	2	----	26	62	145
AABBddee---	----	0	0	0	----	0	1	0	----	1	1	1	----	31	17	62
AAbbDDee---	----	0	0	0	----	0	1	0	----	1	1	1	----	31	17	62
AAbbddEE---	----	0	0	0	----	0	1	0	----	1	1	1	----	31	17	62
aaBBDDee---	----	0	0	0	----	0	1	0	----	1	1	1	----	31	17	62
aaBBddEE---	----	0	0	0	----	0	1	0	----	1	1	1	----	31	17	62
aabbDDEE---	----	0	0	0	----	0	1	0	----	1	1	1	----	31	17	62
AABbDdee---	----	0	0	0	----	2	2	1	----	3	5	5	----	12	74	28
AABbddEe---	----	0	0	0	----	2	2	1	----	3	5	5	----	12	74	28
AAbbDdEe---	----	0	0	0	----	2	2	1	----	3	5	5	----	12	74	28
AaBBDdee---	----	0	0	0	----	2	2	1	----	3	5	5	----	12	74	28
AaBBddEe---	----	0	0	0	----	2	2	1	----	3	5	5	----	12	74	28
AaBbDDee---	----	0	0	0	----	2	2	1	----	3	5	5	----	12	74	28
AABbddEE---	----	0	0	0	----	2	2	1	----	3	5	5	----	12	74	28
AabbDDEe---	----	0	0	0	----	2	2	1	----	3	5	5	----	12	74	28
AabbDdEE---	----	0	0	0	----	2	2	1	----	3	5	5	----	12	74	28
aaBBDdEe---	----	0	0	0	----	2	2	1	----	3	5	5	----	12	74	28
aaBbDDEe---	----	0	0	0	----	2	2	1	----	3	5	5	----	12	74	28
aaBbDdEE---	----	0	0	0	----	2	2	1	----	3	5	6	----	12	74	28
AABbddee---	----	0	0	0	----	1	3	4	----	2	7	11	----	6	97	622
AAbbDdee---	----	0	0	0	----	1	3	4	----	2	7	11	----	6	97	622
AAbbddEe---	----	0	0	0	----	1	3	4	----	2	7	11	----	6	97	622
AaBBddee---	----	0	0	0	----	1	3	4	----	2	7	11	----	6	97	622
AaBbDDee---	----	0	0	0	----	1	3	4	----	2	7	11	----	6	97	622
AaBbddEE---	----	0	0	0	----	1	3	4	----	2	7	11	----	6	97	622
aaBBDdee---	----	0	0	0	----	1	3	4	----	2	7	11	----	6	97	622
aaBBddEe---	----	0	0	0	----	1	3	4	----	2	7	11	----	6	97	622
aaBbDDee---	----	0	0	0	----	1	3	4	----	2	7	11	----	6	97	622
aaBbddEE---	----	0	0	0	----	1	3	4	----	2	7	11	----	6	97	622
aabbDDEe---	----	0	0	0	----	1	3	4	----	2	7	11	----	6	97	622
aabbDdEE---	----	0	0	0	----	1	3	4	----	2	7	11	----	6	97	622
AaBbDdEe---	995	88	8	1	1,990	302	59	16	1,990	359	96	42	3,980	1,222	796	1,624
AAbbddee---	----	0	0	0	----	0	4	13	----	1	9	31	----	3	136	1,562
aaBBddee---	----	0	0	0	----	0	4	13	----	1	9	31	----	3	136	1,562
aabbDDee---	----	0	0	0	----	0	4	13	----	1	9	31	----	3	136	1,562
aabbddEE---	----	0	0	0	----	0	4	13	----	1	9	31	----	3	136	1,562
AaBbDdee---	----	63	16	3	----	249	122	60	----	252	157	116	----	1,000	1,315	3,784
AaBbddEe---	----	63	16	3	----	249	122	60	----	252	157	116	----	1,000	1,315	3,784
AabbDdEe---	----	63	16	3	----	249	122	60	----	252	157	116	----	1,000	1,315	3,784
aaBbDdEe---	----	63	16	3	----	249	122	60	----	252	157	116	----	1,000	1,315	3,784
AaBbddee---	----	62	39	15	----	248	308	280	----	249	347	418	----	987	2,809	10,741
AabbDdee---	----	62	39	15	----	248	308	280	----	249	347	418	----	987	2,809	10,741
AabbddEe---	----	62	39	15	----	248	308	280	----	249	347	418	----	987	2,809	10,741
aaBbDdee---	----	62	39	15	----	248	308	280	----	249	347	418	----	987	2,809	10,741
aaBbddEe---	----	62	39	15	----	248	308	280	----	249	347	418	----	987	2,809	10,741
aabbDdEe---	----	62	39	15	----	248	308	280	----	249	347	418	----	987	2,809	10,741
Aabbddee---	----	62	109	93	----	247	859	1,555	----	248	904	193	----	981	7,095	38,270
aaBbddee---	----	62	109	93	----	247	859	1,555	----	248	904	193	----	981	7,095	38,270
aabbDdee---	----	62	109	93	----	247	859	1,555	----	248	904	193	----	981	7,095	38,270
aabbddEe---	----	62	109	93	----	247	859	1,555	----	248	904	193	----	981	7,095	38,270
aabbddee---	----	62	348	812	----	247	2,742	12,781	----	247	2,798	13,927	----	978	21,414	208,080
Total---	1,020	1,041	1,094	1,291	2,015	4,091	8,672	21,062	2,040	4,247	9,449	25,011	4,030	16,603	75,922	460,901

Table 8.--Theoretical population and genotypic trends of female insects when native population of 2,000 insects (3 autosomal genes BBDDEE plus 1 sex-linked gene AA; female is heterogametic) is overflooded by 198,000 or 396,000 partially sterile insects (aabbddee and a-bbddee) during parental, F_1, F_2, and F_3 generations. Matings between partially sterile insects are assumed to yield no offspring

Genotype	198,000 released with indicated sterility, increase, and generation															
	90 percent, fivefold				80 percent, fivefold				90 percent, tenfold				80 percent, tenfold			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
A BBDDEE---	50	1	0	0	50	3	0	0	100	8	1	0	100	20	9	12
A BBDDEe---	----	1	0	0	----	4	1	0	----	10	3	1	----	31	30	63
A BBDdEe---	----	1	0	0	----	4	1	0	----	10	3	1	----	31	30	63
A BbDDEe---	----	1	0	0	----	4	1	0	----	10	3	1	----	31	30	63
A BBDDee---	----	0	0	0	----	2	1	0	----	3	2	2	----	12	25	81
A BBddEE---	----	0	0	0	----	2	1	0	----	3	2	2	----	12	25	81
A bbDDEE---	----	0	0	0	----	2	1	0	----	3	2	2	----	12	25	81
A BBDdEe---	----	2	0	0	----	7	3	1	----	16	11	8	----	55	121	382
A BbDDEe---	----	2	0	0	----	7	3	1	----	16	11	8	----	55	121	382
A BbDdEE---	----	2	0	0	----	7	3	1	----	16	11	8	----	55	121	382
A BBDdee---	----	1	0	0	----	3	3	3	----	6	10	12	----	24	117	563
A BBddEe---	----	1	0	0	----	3	3	3	----	6	10	12	----	24	117	563
A BbDDee---	----	1	0	0	----	3	3	3	----	6	10	12	----	24	117	563
A BbddEE---	----	1	0	0	----	3	3	3	----	6	10	12	----	24	117	563
A bbDDEe---	----	1	0	0	----	3	3	3	----	6	10	12	----	24	117	563
A bbDdEE---	----	1	0	0	----	3	3	3	----	6	10	12	----	24	117	563
a BBDDEE---	----	1	0	0	----	2	0	0	----	4	1	1	----	14	14	28
A BbDdEe---	495	59	7	1	990	183	51	21	990	247	108	84	1,980	770	891	3,001
a BBDDEe---	----	1	0	0	----	3	1	1	----	7	5	3	----	26	54	169
a BBDdEE---	----	1	0	0	----	3	1	1	----	7	5	3	----	26	54	169
a BbDDEE---	----	1	0	0	----	3	1	1	----	7	5	3	----	26	54	169
A BBddee---	----	0	0	0	----	2	4	6	----	3	10	22	----	12	135	964
A bbDDee---	----	0	0	0	----	2	4	6	----	3	10	22	----	12	135	964
A bbddee---	----	0	0	0	----	2	4	6	----	3	10	22	----	12	135	964
A BbDdee---	----	32	10	2	----	127	81	57	----	133	129	164	----	523	1,108	5,207
A BbddEe---	----	32	10	2	----	127	81	57	----	133	129	164	----	523	1,108	5,207
A bbDdEe---	----	32	10	2	----	127	81	57	----	133	129	164	----	523	1,108	5,207
a BBDDee---	----	0	0	0	----	2	2	1	----	3	4	5	----	12	5	251
a BBddEE---	----	0	0	0	----	2	2	1	----	3	4	5	----	12	5	251
a bbDDEE---	----	0	0	0	----	2	2	1	----	3	4	5	----	12	5	251
a BBDdEe---	----	2	1	0	----	6	7	5	----	13	20	25	----	50	247	1,171
a BbDDEe---	----	2	1	0	----	6	7	5	----	13	20	25	----	50	247	1,171
a BbDdEE---	----	2	1	0	----	6	7	5	----	13	20	25	----	50	247	1,171
A Bbddee---	----	31	22	10	----	124	173	201	----	127	222	414	----	499	1,849	10,894
A bbDdee---	----	31	22	10	----	124	173	201	----	127	222	414	----	499	1,849	10,894
A bbddEe---	----	31	22	10	----	124	173	201	----	127	222	414	----	499	1,849	10,894
a BBDdee---	----	1	1	0	----	3	9	12	----	6	2	46	----	24	277	1,989
a BBddEe---	----	1	1	0	----	3	9	12	----	6	2	46	----	24	277	1,989
a BbDDee---	----	1	1	0	----	3	9	12	----	6	2	46	----	24	277	1,989
a BbddEE---	----	1	1	0	----	3	9	12	----	6	2	46	----	24	277	1,989
a bbDDEe---	----	1	1	0	----	3	9	12	----	6	2	46	----	24	277	1,989
a bbDdEE---	----	1	1	0	----	3	9	12	----	6	2	46	----	24	277	1,989
a BbDdEe---	495	120	26	5	990	425	198	124	990	487	324	361	1,980	1,716	2,612	11,072
a BBddee---	----	0	1	1	----	2	12	33	----	3	27	99	----	12	354	3,937
a bbDDee---	----	0	1	1	----	2	12	33	----	3	27	99	----	12	354	3,937
a bbddEE---	----	0	1	1	----	2	12	33	----	3	27	99	----	12	354	3,937
A bbddee---	----	31	57	52	----	123	445	914	----	124	500	1,402	----	487	3,927	28,412
a BbDdee---	----	93	53	22	----	370	410	434	----	376	530	899	----	1,474	4,251	23,017
a BbddEe---	----	93	53	22	----	370	410	434	----	376	530	899	----	1,474	4,251	23,017
a bbDdEe---	----	93	53	22	----	370	410	434	----	376	530	899	----	1,474	4,251	23,017
a Bbddee---	----	93	13	113	----	367	1,039	1,963	----	370	1,169	3,020	----	1,450	8,997	59,844
a bbDdee---	----	93	13	113	----	367	1,039	1,963	----	370	1,169	3,020	----	1,450	8,997	59,844
a bbddEe---	----	93	13	113	----	367	1,039	1,963	----	370	1,169	3,020	----	1,450	8,997	59,844
a bbddee---	----	92	404	884	----	365	3,136	13,733	----	367	3,286	16,461	----	1,438	24,211	227,634
Total---	1,040	1,083	1,161	1,386	2,030	4,182	9,107	22,987	2,080	4,502	10,805	32,644	4,060	17,200	85,703	603,418

Table 8.--Theoretical population and genotypic trends of female insects when native population of 2,000 insects (3 autosomal genes BBDDEE plus 1 sex-linked gene AA; female is heterogametic) is overflooded by 198,000 or 396,000 partially sterile insects (aabbddee and a-bbddee) during parental, F_1, F_2, and F_3 generations. Matings between partially sterile insects are assumed to yield no offspring--Continued

Genotype	396,000 released with indicated sterility, increase, and generation															
	90 percent, fivefold				80 percent, fivefold				90 percent, tenfold				80 percent, tenfold			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
A BBDDEE---	25	0	0	0	25	1	0	0	50	3	0	0	50	8	2	2
A BBDDEe---	----	1	0	0	----	2	0	0	----	4	1	0	----	14	9	12
A BBDdEE---	----	1	0	0	----	2	0	0	----	4	1	0	----	14	9	12
A BbDDEE---	----	1	0	0	----	2	0	0	----	4	1	0	----	14	9	12
A BBDDee---	----	0	0	0	----	1	0	0	----	2	1	0	----	6	10	20
A BBddEe---	----	0	0	0	----	1	0	0	----	2	1	0	----	6	10	20
A bbDDEE---	----	0	0	0	----	1	0	0	----	2	1	0	----	6	10	20
A BBDdEe---	----	1	0	0	----	3	1	0	----	7	3	1	----	26	44	90
A BbDDEe---	----	1	0	0	----	3	1	0	----	7	3	1	----	26	44	90
A BbDdEE---	----	1	0	0	----	3	1	0	----	7	3	1	----	26	44	90
A BBDdEe---	----	0	0	0	----	2	2	1	----	3	4	3	----	12	51	171
A BBddEe---	----	0	0	0	----	2	2	1	----	3	4	3	----	12	51	171
A BbDDee---	----	0	0	0	----	2	2	1	----	3	4	3	----	12	51	171
A BbddEE---	----	0	0	0	----	2	2	1	----	3	4	3	----	12	51	171
A bbDDEe---	----	0	0	0	----	2	2	1	----	3	4	3	----	12	51	171
A bbDdEE---	----	0	0	0	----	2	2	1	----	3	4	3	----	12	51	171
a BBDDEE---	----	0	0	0	----	1	0	0	----	2	0	0	----	7	4	5
A BbDdEe---	497	45	4	0	995	154	31	9	995	186	53	23	1,990	637	460	957
a BBDDEe---	----	0	0	0	----	2	1	0	----	3	2	1	----	13	20	40
a BBDdEE---	----	0	0	0	----	2	1	0	----	3	2	1	----	13	20	40
a BbDDEE---	----	0	0	0	----	2	1	0	----	3	2	1	----	13	20	40
A BBddee---	----	0	0	0	----	1	2	2	----	2	5	7	----	6	66	373
A bbDDee---	----	0	0	0	----	1	2	2	----	2	5	7	----	6	66	373
A bbddEE---	----	0	0	0	----	1	2	2	----	2	5	7	----	6	66	373
A BbDdee---	----	32	8	2	----	126	63	32	----	129	84	63	----	512	731	2,173
A BbddEe---	----	32	8	2	----	126	63	32	----	129	84	63	----	512	731	2,173
A bbDdEe---	----	32	8	2	----	126	63	32	----	129	84	63	----	512	731	2,173
a BBDDee---	----	0	0	0	----	1	1	0	----	2	2	1	----	6	2	77
a BBddEE---	----	0	0	0	----	1	1	0	----	2	2	1	----	6	2	77
a bbDDEE---	----	0	0	0	----	1	1	0	----	2	2	1	----	6	2	77
a BBDdEe---	----	1	0	0	----	3	3	2	----	6	8	6	----	25	105	353
a BbDDEe---	----	1	0	0	----	3	3	2	----	6	8	6	----	25	105	353
a BbDdEE---	----	1	0	0	----	3	3	2	----	6	8	6	----	25	105	353
A Bbddee---	----	31	20	8	----	125	157	144	----	126	180	220	----	500	1,502	5,992
A bbDdee---	----	31	20	8	----	125	157	144	----	126	180	220	----	500	1,502	5,992
A bbddEe---	----	31	20	8	----	125	157	144	----	126	180	220	----	500	1,502	5,992
a BBDdee---	----	0	0	0	----	2	4	5	----	3	9	14	----	12	134	762
a BBddEe---	----	0	0	0	----	2	4	5	----	3	9	14	----	12	134	762
a BbDDee---	----	0	0	0	----	2	4	5	----	3	9	14	----	12	134	762
a BbddEE---	----	0	0	0	----	2	4	5	----	3	9	14	----	12	134	762
a bbDDEe---	----	0	0	0	----	2	4	5	----	3	9	14	----	12	134	762
a bbDdEE---	----	0	0	0	----	2	4	5	----	3	9	14	----	12	134	762
a BbDdEe---	497	107	20	3	995	400	152	69	995	432	205	137	1,990	1,611	1,713	4,596
a BBddee---	----	0	0	0	----	1	1	15	----	2	13	37	----	6	184	187
a bbDDee---	----	0	0	0	----	1	1	16	----	2	13	37	----	6	184	187
a bbddEE---	----	0	0	0	----	1	1	15	----	2	13	37	----	6	184	187
A bbddee---	----	31	55	47	----	124	434	790	----	125	462	997	----	494	3,683	20,697
a BbDdee---	----	94	47	17	----	372	369	310	----	375	425	476	----	1,487	3,466	12,633
a BbddEe---	----	94	47	17	----	372	369	310	----	375	425	476	----	1,487	3,466	12,633
a bbDdEe---	----	94	47	17	----	372	369	310	----	375	425	476	----	1,487	3,466	12,633
a Bbddee---	----	93	128	101	----	371	1,013	1,695	----	372	1,078	2,141	----	1,475	8,499	43,640
a bbDdee---	----	93	128	101	----	371	1,013	1,695	----	372	1,078	2,141	----	1,475	8,499	43,640
a bbddEe---	----	93	128	101	----	371	1,013	1,695	----	372	1,078	2,141	----	1,475	8,499	43,640
a bbddee---	----	93	402	858	----	370	3,171	13,559	----	371	3,250	14,893	----	1,469	24,962	227,215
Total---	1,020	1,041	1,094	1,291	2,015	4,091	8,672	21,062	2,040	4,247	9,449	25,011	4,030	16,603	75,922	460,901

Table 9.--Theoretical population and genotypic trends when native population of 2,000 insects (aa) is overflooded by 198,000 or 396,000 partially sterile insects (AA) during parental, F_1, F_2, and F_3 generations. Matings between partially sterile insects are assumed to yield offspring proportionate to sterility level

Number released	Sterility	Rate of increase	Generation	Genotype			
				aa	Aa	AA	Total
	Percent						
198,000--	90	Fivefold--	F_1	100	1,980	2,801	11,881
			F_2	28	1,589	22,294	23,911
			F_3	15	1,590	41,444	43,049
			F_4	14	2,085	79,836	81,935
198,000--	80	--do--	F_1	100	3,960	39,204	43,264
			F_2	90	6,965	135,247	142,302
			F_3	187	18,718	467,254	486,159
			F_4	666	72,031	1,947,467	2,020,164
198,000--	90	Tenfold--	F_1	200	3,960	19,602	23,762
			F_2	214	8,136	77,221	85,571
			F_3	647	30,532	360,367	391,546
			F_4	4,295	213,463	2,652,338	2,870,096
198,000--	80	--do--	F_1	200	7,920	78,408	86,528
			F_2	608	35,665	522,838	559,111
			F_3	4,492	282,671	4,447,347	4,734,510
			F_4	43,113	2,736,651	43,428,196	46,207,960
396,000--	90	Fivefold--	F_1	50	1,990	19,700	21,740
			F_2	13	1,509	43,514	45,036
			F_3	7	1,459	79,743	81,209
			F_4	6	1,853	151,061	152,920
396,000--	80	--do--	F_1	50	3,980	78,802	82,832
			F_2	43	6,817	267,290	274,150
			F_3	89	18,023	913,444	931,556
			F_4	312	68,664	3,778,802	3,847,778
396,000--	90	Tenfold--	F_1	101	3,980	39,401	43,482
			F_2	99	7,705	149,256	157,060
			F_3	282	27,540	671,474	699,296
			F_4	1,803	185,990	4,796,866	4,984,659
396,000--	80	--do--	F_1	101	7,960	157,604	165,665
			F_2	296	34,985	1,032,234	1,067,515
			F_3	2,162	274,441	8,708,310	8,984,913
			F_4	20,710	2,652,099	84,907,327	87,580,136

Table 10.--Theoretical population and genotypic trends when native population of 2,000 insects (AABB) is overflooded by 198,000 or 396,000 partially sterile insects (aabb) during parental, F_1, F_2, and F_3 generations. Matings between partially sterile insects are assumed to yield offspring proportionate to sterility level

Number released	Fertility	Rate of increase	Generation	Genotype									
				AABB	AaBB	AABb	AaBb	aaBB	AAbb	aaBb	Aabb	aabb	Total
	Percent												
			P	100	----	----	1,980	----	----	----	----	9,801	11,881
			F_1	8	14	14	865	6	6	710	710	21,578	23,911
198,000--	90	Fivefold--	F_2	1	6	6	470	8	8	1,113	1,113	40,324	43,048
			F_3	0	4	4	338	10	10	1,744	1,744	78,083	81,937
			P	100	----	----	3,960	----	----	----	----	39,204	43,264
			F_1	25	45	45	3,646	20	20	3,274	3,274	13,195	142,302
198,000--	80	--do--	F_2	14	75	75	5,262	99	99	13,382	13,382	453,773	486,161
			F_3	14	167	167	11,398	485	485	60,466	60,466	1,886,516	2,020,164
			P	200	----	----	3,960	----	----	----	----	19,602	23,762
			F_1	64	106	106	4,423	44	44	3,606	3,606	73,570	85,569
198,000--	90	Tenfold--	F_2	57	271	271	9,464	319	319	20,797	20,797	339,252	391,547
			F_3	123	1,208	1,208	40,859	2,964	2,964	171,397	171,397	2,477,981	2,870,101
			P	200	----	----	7,920	----	----	----	----	78,408	86,528
			F_1	167	303	303	18,662	138	138	16,700	16,700	506,000	559,111
198,000--	80	--do--	F_2	384	1,805	1,805	81,598	2,338	2,338	199,268	199,268	4,245,740	4,734,508
			F_3	1,031	11,273	11,273	473,583	30,809	30,809	2,251,795	2,251,795	41,145,583	46,207,951
			P	50	----	----	1,990	----	----	----	----	19,701	21,740
			F_1	4	7	7	790	3	3	712	712	42,799	45,037
396,000--	90	Fivefold--	F_2	1	3	3	399	4	4	1,057	1,057	78,683	81,212
			F_3	0	1	1	266	4	4	1,585	1,585	149,472	152,918
			P	50	----	----	3,980	----	----	----	----	78,802	82,832
			F_1	11	22	22	3,491	103	103	3,304	3,304	253,976	274,150
396,000--	80	--do--	F_2	6	34	34	4,793	48	48	13,196	13,196	900,200	931,555
			F_3	6	73	73	9,738	233	233	58,853	58,853	3,719,717	3,847,779
			P	100	----	----	3,980	----	----	----	----	39,401	43,482
			F_1	27	50	50	4,033	23	23	3,622	3,622	145,612	157,062
396,000--	90	Tenfold--	F_2	21	113	113	7,747	149	149	19,680	19,680	651,646	699,296
			F_3	39	453	453	29,574	1,311	1,311	155,964	155,964	4,639,600	4,984,668
			P	100	----	----	7,960	----	----	----	----	157,604	165,664
			F_1	78	148	148	17,916	71	71	16,921	16,921	1,015,242	1,067,517
396,000--	80	--do--	F_2	151	841	841	74,085	1,170	1,170	199,515	199,515	8,507,627	8,984,915
			F_3	406	4,987	4,987	396,944	15,317	15,317	2,250,169	2,250,169	82,641,852	87,580,148

Table 11.--Theoretical population and genotypic trends when native population of 2,000 insects (AABBDD) is overflooded by 198,000 or 396,000 partially sterile insects (aabbdd) during parental, F_1, F_2, and F_3 generations. Matings between partially sterile insects are assumed to yield offspring proportionate to sterility level

Genotype	198,000 released with indicated sterility, increase, and generation															
	90 percent, fivefold				80 percent, fivefold				90 percent, tenfold				80 percent, tenfold			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
AABBDD---	100	3	0	0	100	7	1	0	200	22	6	5	200	50	32	33
AABBDd---	----	4	1	0	----	12	6	4	----	31	26	40	----	83	147	302
AABbDD---	----	4	1	0	----	12	6	4	----	31	26	40	----	83	147	302
AaBBDD---	----	4	1	0	----	12	6	4	----	31	26	40	----	83	147	302
AABbdd---	----	1	1	0	----	5	7	10	----	11	25	78	----	34	169	696
AAbbDD---	----	1	1	0	----	5	7	10	----	11	25	78	----	34	169	696
aaBBDD---	----	1	1	0	----	5	7	10	----	11	25	78	----	34	169	696
AABbDd---	----	7	3	1	----	22	30	44	----	53	116	361	----	152	738	3,099
AaBBDd---	----	7	3	1	----	22	30	44	----	53	116	361	----	152	738	3,099
AaBbDD---	----	7	3	1	----	22	30	44	----	53	116	361	----	152	738	3,099
AABbdd---	----	3	3	2	----	10	39	119	----	22	129	808	----	69	919	7,872
AAbbDd---	----	3	3	2	----	10	30	119	----	22	129	808	----	69	919	7,872
AaBBdd---	----	3	3	2	----	10	39	119	----	22	129	808	----	69	919	7,872
AabbDD---	----	3	3	2	----	10	39	119	----	22	129	808	----	69	919	7,872
aaBBDd---	----	3	3	2	----	10	39	119	----	22	129	808	----	69	919	7,872
aaBbDD---	----	3	3	2	----	10	39	119	----	22	129	808	----	69	919	7,872
AaBbDd---	1,980	503	155	64	3,960	1,986	1,601	2,063	3,960	2,567	3,290	9,261	7,920	10,161	25,690	95,302
AAbbdd---	----	1	4	7	----	5	53	355	----	11	164	2,078	----	34	1,250	22,241
aaBBdd---	----	1	4	7	----	5	53	355	----	11	164		----	34	1,250	22,241
aabbDD---	----	1	4	7	----	5	53	355	----	11	164		----	34	1,250	22,241
AaBbdd---	----	355	313	273	----	1,637	3,631	9,291	----	1,803	6,058	31,237	----	8,350	55,170	375,179
AabbDd---	----	355	313	273	----	1,637	3,631	9,291	----	1,803	6,058	31,237	----	8,350	55,170	375,179
aaBbDd---	----	355	313	273	----	1,637	3,631	9,291	----	1,803	6,058	31,237	----	8,350	55,170	375,179
Aabbdd---	----	352	797	1,468	----	1,627	9,712	51,056	----	1,781	14,610	139,353	----	8,281	143,178	1,868,736
aaBbdd---	----	352	797	1,468	----	1,627	9,712	51,056	----	1,781	14,610	139,353	----	8,281	143,178	1,868,736
aabbDd---	----	352	797	1,468	----	1,627	9,712	51,056	----	1,781	14,610	139,353	----	8,281	143,178	1,868,736
aabbdd---	9,801	21,225	39,522	76,609	39,204	130,321	444,011	1,835,117	19,602	71,778	324,480	2,336,566	78,408	497,684	4,101,311	39,254,544
Total----	11,881	23,911	43,050	81,936	43,264	142,301	486,161	2,020,176	23,762	85,571	391,548	2,770,116	86,528	559,111	4,734,505	46,207,856

Table 11.--Theoretical population and genotypic trends when native population of 2,000 insects (AABBDD) is overflooded by 198,000 or 396,000 partially sterile insects (aabbdd) during parental, F_1, F_2, and F_3 generations. Matings between partially sterile insects are assumed to yield offspring proportionate to sterility level--Continued

Genotype	396,000 released with indicated sterility, increase, and generation															
	90 percent, fivefold				80 percent, fivefold				90 percent, tenfold				80 percent, tenfold			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
AABBDD ---	50	1	0	0	50	3	0	0	101	8	2	1	101	21	12	10
AABBDd ---	----	2	0	0	----	6	2	1	----	14	9	11	----	39	61	105
AABbDD ---	----	2	0	0	----	6	2	1	----	14	9	11	----	39	61	105
AaBBDD ---	----	2	0	0	----	6	2	1	----	14	9	11	----	39	61	105
AABBdd ---	----	1	0	0	----	3	3	4	----	6	11	27	----	18	79	291
AAbbDD ---	----	1	0	0	----	3	3	4	----	6	11	27	----	18	79	291
aaBBDD ---	----	1	0	0	----	3	3	4	----	6	11	27	----	18	79	291
AABbDd ---	----	3	1	0	----	11	13	18	----	25	46	119	----	74	331	1,241
AaBBDd ---	----	3	1	0	----	11	13	18	----	25	46	119	----	74	331	1,241
AaBbDD ---	----	3	1	0	----	11	13	18	----	25	46	119	----	74	331	1,241
AABbdd ---	----	1	1	1	----	5	19	54	----	11	58	323	----	35	450	3,641
AAbbDd ---	----	1	1	1	----	5	19	54	----	11	58	323	----	35	450	3,641
AaBBdd ---	----	1	1	1	----	5	19	54	----	11	58	323	----	35	450	3,641
AabbDD ---	----	1	1	1	----	5	19	54	----	11	58	323	----	35	450	3,641
aaBBDd ---	----	1	1	1	----	5	19	54	----	11	58	323	----	35	450	3,641
aaBbDD ---	----	1	1	1	----	5	19	54	----	11	58	323	----	35	450	3,641
AaBbDd ---	1,990	431	117	42	3,980	1,829	1,336	1,510	3,980	2,197	2,358	5,385	7,960	9,382	21,119	66,405
AAbbdd ---	----	1	2	3	----	3	27	174	----	6	80	960	----	18	641	11,385
aaBBdd ---	----	1	2	3	----	3	27	174	----	6	80	960	----	18	641	11,385
aabbDD ---	----	1	2	3	----	3	27	174	----	6	80	960	----	18	641	11,385
AaBbdd ---	----	356	281	223	----	1,652	3,443	8,211	----	1,811	5,343	24,070	----	8,460	52,635	329,296
AabbDd ---	----	356	281	223	----	1,652	3,443	8,211	----	1,811	5,343	24,070	----	8,460	52,635	329,296
aaBbDd ---	----	356	281	223	----	1,652	3,443	8,211	----	1,811	5,343	24,070	----	8,460	52,635	329,296
Aabbdd ---	----	355	775	1,361	----	1,647	9,735	50,588	----	1,800	14,279	131,570	----	8,425	146,430	1,917,222
aaBbdd ---	----	355	775	1,361	----	1,647	9,735	50,588	----	1,800	14,279	131,570	----	8,425	146,430	1,917,222
aabbDd ---	----	355	775	1,361	----	1,647	9,735	50,588	----	1,800	14,279	131,570	----	8,425	146,430	1,917,222
aabbdd ---	19,700	42,444	77,906	148,108	78,802	262,326	890,439	3,668,955	39,401	143,806	637,286	4,507,058	157,604	1,006,799	8,360,540	80,713,024
Total----	21,740	45,036	81,210	152,920	82,832	274,150	931,557	3,847,777	43,482	157,060	699,296	4,984,654	165,665	1,067,514	8,984,898	87,579,904

Table 12.--Theoretical population and genotypic trends when native population of 2,000 insects (AABBDDEE) is overflooded by 198,000 or 396,000 partially sterile insects (aabbddee) during parental, F_1, F_2, and F_3 generations. Matings between partially sterile insects are assumed to yield offspring proportionate to sterility level

	198,000 released with indicated sterility, increase, and generation															
	90 percent, fivefold				80 percent, fivefold				90 percent, tenfold				80 percent, tenfold			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	
AABBDDEE	100	1	0	0	100	3	0	0	200	9	1	0	200	17	4	1	
AABBDDEe	----	1	0	0	----	4	1	0	----	10	3	2	----	24	14	11	
AABBDDee	----	1	0	0	----	4	1	0	----	10	3	2	----	24	14	11	
AABBDdEE	----	1	0	0	----	4	1	0	----	10	3	2	----	24	14	11	
AABBDdEe	----	1	0	0	----	4	1	0	----	10	3	2	----	24	14	11	
AABBDdee	----	0	0	0	----	1	1	0	----	3	2	3	----	9	14	20	
AABbDDEE	----	0	0	0	----	1	1	0	----	3	2	3	----	9	14	20	
AABbDDEe	----	0	0	0	----	1	1	0	----	3	2	3	----	9	14	20	
AABbDdEE	----	0	0	0	----	1	1	0	----	3	2	3	----	9	14	20	
AABbDdEe	----	2	0	0	----	6	3	1	----	16	12	14	----	41	64	94	
AABbDdee	----	2	0	0	----	6	3	1	----	16	12	14	----	41	64	94	
AaBBDDEE	----	2	0	0	----	6	3	1	----	16	12	14	----	41	64	94	
AaBBDDEe	----	2	0	0	----	6	3	1	----	16	12	14	----	41	64	94	
AaBbDDEE	----	2	0	0	----	6	3	1	----	16	12	14	----	41	64	94	
AaBbDdEE	----	2	0	0	----	6	3	1	----	16	12	14	----	41	64	94	
AABbDdEe	----	1	0	0	----	3	3	3	----	6	11	24	----	17	69	197	
AABbDdee	----	1	0	0	----	3	3	3	----	6	11	24	----	17	69	197	
AaBBDDEE	----	1	0	0	----	3	3	3	----	6	11	24	----	17	69	197	
AaBBDDEe	----	1	0	0	----	3	3	3	----	6	11	24	----	17	69	197	
AaBbDDEE	----	1	0	0	----	3	3	3	----	6	11	24	----	17	69	197	
AaBbDDee	----	1	0	0	----	3	3	3	----	6	11	24	----	17	69	197	
AaBbDdEE	----	1	0	0	----	3	3	3	----	6	11	24	----	17	69	197	
AaBbDdEe	----	1	0	0	----	3	3	3	----	6	11	24	----	17	69	197	
AaBbDdee	----	1	0	0	----	3	3	3	----	6	11	24	----	17	69	197	
AABbDdEe	----	4	1	0	----	11	12	12	----	27	51	115	----	76	308	900	
AaBBDdEe	----	4	1	0	----	11	12	12	----	27	51	115	----	76	308	900	
AaBbDDEe	----	4	1	0	----	11	12	12	----	27	51	115	----	76	308	900	
AaBbDdEE	----	4	1	0	----	11	12	12	----	27	51	115	----	76	308	900	
AABBddee	----	0	0	0	----	1	4	7	----	3	12	51	----	9	86	479	
AAbbDDee	----	0	0	0	----	1	4	7	----	3	12	51	----	9	86	479	
AAbbddEE	----	0	0	0	----	1	4	7	----	3	12	51	----	9	86	479	
aaBBDDee	----	0	0	0	----	1	4	7	----	3	12	51	----	9	86	479	
aaBBddEE	----	0	0	0	----	1	4	7	----	3	12	51	----	9	86	479	
aaBbDDEE	----	0	0	0	----	1	4	7	----	3	12	51	----	9	86	479	
AABbDdee	----	1	1	1	----	5	15	31	----	11	53	233	----	34	366	2,106	
AABbDdEe	----	1	1	1	----	5	15	31	----	11	53	233	----	34	366	2,106	
AaBBDdEe	----	1	1	1	----	5	15	31	----	11	53	233	----	34	366	2,106	
AaBbDDEe	----	1	1	1	----	5	15	31	----	11	53	233	----	34	366	2,106	
AaBbDdEE	----	1	1	1	----	5	15	31	----	11	53	233	----	34	366	2,106	
AaBbDdee	----	1	1	1	----	5	15	31	----	11	53	233	----	34	366	2,106	
AABbDdEe	----	1	1	1	----	5	15	31	----	11	53	233	----	34	366	2,106	
AaBbDDEe	----	1	1	1	----	5	15	31	----	11	53	233	----	34	366	2,106	
AaBbDdEE	----	1	1	1	----	5	15	31	----	11	53	233	----	34	366	2,106	
AaBbDdEe	----	1	1	1	----	5	15	31	----	11	53	233	----	34	366	2,106	
AaBbDdee	----	1	1	1	----	5	15	31	----	11	53	233	----	34	366	2,106	
AABbDdEe	----	1	2	2	----	3	20	86	----	6	65	551	----	17	484	5,568	
AaBBDdEe	----	1	2	2	----	3	20	86	----	6	65	551	----	17	484	5,568	
AaBbDDEe	----	1	2	2	----	3	20	86	----	6	65	551	----	17	484	5,568	
AaBbDdEE	----	1	2	2	----	3	20	86	----	6	65	551	----	17	484	5,568	
AaBbDdEe	----	1	2	2	----	3	20	86	----	6	65	551	----	17	484	5,568	
AaBbDdee	----	1	2	2	----	3	20	86	----	6	65	551	----	17	484	5,568	
aaBBDdEe	----	1	2	2	----	3	20	86	----	6	65	551	----	17	484	5,568	
aaBbDDEe	----	1	2	2	----	3	20	86	----	6	65	551	----	17	484	5,568	
aaBbDdEE	----	1	2	2	----	3	20	86	----	6	65	551	----	17	484	5,568	
aaBbDdee	----	1	2	2	----	3	20	86	----	6	65	551	----	17	484	5,568	
AaBbDdEe	----	322	58	14	3,960	1,156	543	435	3,960	1,639	1,306	2,448	7,920	5,910	9,063	22,305	
AABbDdee	----	0	2	5	----	1	29	262	----	3	87	1,476	----	9	679	16,194	
aaBBDdEe	----	0	2	5	----	1	29	262	----	3	87	1,476	----	9	679	16,194	
aaBbDDEe	----	0	2	5	----	1	29	262	----	3	87	1,476	----	9	679	16,194	
aaBbDdEE	----	0	2	5	----	1	29	262	----	3	87	1,476	----	9	679	16,194	
AaBbDdEe	----	177	95	49	----	819	1,045	1,616	----	902	1,932	6,698	----	4,175	16,318	72,098	
AaBbDdee	----	177	95	49	----	819	1,045	1,616	----	902	1,932	6,698	----	4,175	16,318	72,098	
AaBbDdEe	----	177	95	49	----	819	1,045	1,616	----	902	1,932	6,698	----	4,175	16,318	72,098	
aaBbDdEe	----	177	95	49	----	819	1,045	1,616	----	902	1,932	6,698	----	4,175	16,318	72,098	
AaBbDdee	----	176	216	223	----	813	2,571	7,644	----	891	4,073	24,306	----	4,140	38,485	300,976	
AaBbDdee	----	176	216	223	----	813	2,571	7,644	----	891	4,073	24,306	----	4,140	38,485	300,976	
AaBbDdEe	----	176	216	223	----	813	2,571	7,644	----	891	4,073	24,306	----	4,140	38,485	300,976	
aaBbDdee	----	176	216	223	----	813	2,571	7,644	----	891	4,073	24,306	----	4,140	38,485	300,976	
aaBbDdEe	----	176	216	223	----	813	2,571	7,644	----	891	4,073	24,306	----	4,140	38,485	300,976	
aaBbDdEe	----	176	216	223	----	813	2,571	7,644	----	891	4,073	24,306	----	4,140	38,485	300,976	
AaBbDdee	----	175	579	1,243	----	811	7,120	43,326	----	885	10,471	114,495	----	4,123	104,210	1,562,197	
aaBbDdee	----	175	579	1,243	----	811	7,120	43,326	----	885	10,471	114,495	----	4,123	104,210	1,562,197	
aaBbDdee	----	175	579	1,243	----	811	7,120	43,326	----	885	10,471	114,495	----	4,123	104,210	1,562,197	
aaBbDdEe	----	175	579	1,243	----	811	7,120	43,326	----	885	10,471	114,495	----	4,123	104,210	1,562,197	
aaBbDdee	3,961	21,049	38,941	75,360	39,204	129,508	436,859	1,791,515	19,602	70,890	313,919	2,220,572	78,408	493,552	3,996,416	37,676,132	
Total----	11,881	23,911	43,080	81,935	43,264	142,301	486,159	2,020,161	23,762	85,571	391,545	2,870,090	86,528	559,110	4,734,500	46,207,866	

Table 12.--Theoretical population and genotypic trends when native population of 2,000 insects (AABBDDEE) is overflooded by 198,000 or 396,000 partially sterile insects (aabbddee) during parental, F_1, F_2, and F_3 generations. Matings between partially sterile insects are assumed to yield offspring proportionate to sterility level--Continued

Genotype	396,000 released with indicated sterility, increase, and generation															
	90 percent, fivefold				80 percent, fivefold				90 percent, tenfold				80 percent, tenfold			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
AABBDDEE---	50	0	0	0	50	1	0	0	101	3	0	0	101	6	1	0
AABBDDEe---	----	1	0	0	----	2	0	0	----	4	1	0	----	11	5	3
AABBDdEE---	----	1	0	0	----	2	0	0	----	4	1	0	----	11	5	3
AABbDDEE---	----	1	0	0	----	2	0	0	----	4	1	0	----	11	5	3
AaBBDDEE---	----	1	0	0	----	2	0	0	----	4	1	0	----	11	5	3
AABBDDee---	----	0	0	0	----	1	0	0	----	1	1	1	----	4	6	6
AABBddEE---	----	0	0	0	----	1	0	0	----	1	1	1	----	4	6	6
AAbbDDEE---	----	0	0	0	----	1	0	0	----	1	1	1	----	4	6	6
aaBBDDEE---	----	0	0	0	----	1	0	0	----	1	1	1	----	4	6	6
AABBDdEe---	----	1	0	0	----	3	1	0	----	7	4	3	----	19	25	29
AABbDDEe---	----	1	0	0	----	3	1	0	----	7	4	3	----	19	25	29
AABbDdEE---	----	1	0	0	----	3	1	0	----	7	4	3	----	19	25	29
AaBBDDEe---	----	1	0	0	----	3	1	0	----	7	4	3	----	19	25	29
AaBBDdEE---	----	1	0	0	----	3	1	0	----	7	4	3	----	19	25	29
AaBbDDEE---	----	1	0	0	----	3	1	0	----	7	4	3	----	19	25	29
AABBDdee---	----	0	0	0	----	1	1	1	----	3	4	7	----	9	31	74
AABBddEe---	----	0	0	0	----	1	1	1	----	3	4	7	----	9	31	74
AABbDDee---	----	0	0	0	----	1	1	1	----	3	4	7	----	9	31	74
AABbddEE---	----	0	0	0	----	1	1	1	----	3	4	7	----	9	31	74
AAbbDDEe---	----	0	0	0	----	1	1	1	----	3	4	7	----	9	31	74
AAbbDdEE---	----	0	0	0	----	1	1	1	----	3	4	7	----	9	31	74
AaBBDDee---	----	0	0	0	----	1	1	1	----	3	4	7	----	9	31	74
AaBBddEE---	----	0	0	0	----	1	1	1	----	3	4	7	----	9	31	74
AabbDDEE---	----	0	0	0	----	1	1	1	----	3	4	7	----	9	31	74
aaBBDDEe---	----	0	0	0	----	1	1	1	----	3	4	7	----	9	31	74
aaBBDdEE---	----	0	0	0	----	1	1	1	----	3	4	7	----	9	31	74
aaBbDDEE---	----	0	0	0	----	1	1	1	----	3	4	7	----	9	31	74
AABbDdEe---	----	2	0	0	----	5	5	4	----	12	19	33	----	37	132	321
AaBBDdEe---	----	2	0	0	----	5	5	4	----	12	19	33	----	37	132	321
AaBbDDEe---	----	2	0	0	----	5	5	4	----	12	19	33	----	37	132	321
AaBbDdEE---	----	2	0	0	----	5	5	4	----	12	19	33	----	37	132	321
AABBddee---	----	0	0	0	----	1	2	3	----	1	5	19	----	4	42	211
AAbbDDee---	----	0	0	0	----	1	2	3	----	1	5	19	----	4	42	211
AAbbddEE---	----	0	0	0	----	1	2	3	----	1	5	19	----	4	42	211
aabbDDee---	----	0	0	0	----	1	2	3	----	1	5	19	----	4	42	211
aaBBddEE---	----	0	0	0	----	1	2	3	----	1	5	19	----	4	42	211
aabbDDEE---	----	0	0	0	----	1	2	3	----	1	5	19	----	4	42	211
AABbDdee---	----	1	1	0	----	3	7	13	----	6	23	83	----	18	174	891
AABbddEe---	----	1	1	0	----	3	7	13	----	6	23	83	----	18	174	891
AAbbDdEe---	----	1	1	0	----	3	7	13	----	6	23	83	----	18	174	891
AaBBDdee---	----	1	1	0	----	3	7	13	----	6	23	83	----	18	174	891
AaBbddEe---	----	1	1	0	----	3	7	13	----	6	23	83	----	18	174	891
AaBbDDee---	----	1	1	0	----	3	7	13	----	6	23	83	----	18	174	891
AABbddEE---	----	1	1	0	----	3	7	13	----	6	23	83	----	18	174	891
AabbDDEe---	----	1	1	0	----	3	7	13	----	6	23	83	----	18	174	891
AabbDdEE---	----	1	1	0	----	3	7	13	----	6	23	83	----	18	174	891
aaBBDdEe---	----	1	1	0	----	3	7	13	----	6	23	83	----	18	174	891
aaBbDDEe---	----	1	1	0	----	3	7	13	----	6	23	83	----	18	174	891
aaBbDdEE---	----	1	1	0	----	3	7	13	----	6	23	83	----	18	174	891
AABbddee---	----	0	1	1	----	1	10	40	----	3	31	233	----	9	245	2,676
AAbbDdee---	----	0	1	1	----	1	10	40	----	3	31	233	----	9	245	2,676
AAbbddEe---	----	0	1	1	----	1	10	40	----	3	31	233	----	9	245	2,676
AaBBddee---	----	0	1	1	----	1	10	40	----	3	31	233	----	9	245	2,676
AabbDDee---	----	0	1	1	----	1	10	40	----	3	31	233	----	9	245	2,676
AabbddEE---	----	0	1	1	----	1	10	40	----	3	31	233	----	9	245	2,676
aaBBDdee---	----	0	1	1	----	1	10	40	----	3	31	233	----	9	245	2,676
aaBBddEe---	----	0	1	1	----	1	10	40	----	3	31	233	----	9	245	2,676
aaBbDDee---	----	0	1	1	----	1	10	40	----	3	31	233	----	9	245	2,676
aaBbddEE---	----	0	1	1	----	1	10	40	----	3	31	233	----	9	245	2,676
aabbDDEe---	----	0	1	1	----	1	10	40	----	3	31	233	----	9	245	2,676
aabbDdEE---	----	0	1	1	----	1	10	40	----	3	31	233	----	9	245	2,676
AaBbDdEe---1,990		251	38	8	3,980	997	402	265	3,980	1,279	801	1,143	7,960	5,115	6,542	12,744
AAbbddee---	----	0	1	2	----	1	15	131	----	1	44	708	----	4	354	8,499
aaBBddee---	----	0	1	2	----	1	15	131	----	1	44	708	----	4	354	8,499
aabbDDee---	----	0	1	2	----	1	15	131	----	1	44	708	----	4	354	8,499
aabbddEE---	----	0	1	2	----	1	15	131	----	1	44	708	----	4	354	8,499
AaBbDdee---	----	178	79	34	----	826	929	1,241	----	906	1,538	4,210	----	4,230	14,445	53,340
AaBbddEe---	----	178	79	34	----	826	929	1,241	----	906	1,538	4,210	----	4,230	14,445	53,340
AabbDdEe---	----	178	79	34	----	826	929	1,241	----	906	1,538	4,210	----	4,230	14,445	53,340
aaBbDdEe---	----	178	79	34	----	826	929	1,241	----	906	1,538	4,210	----	4,230	14,445	53,340
AaBbddee---	----	177	202	189	----	823	2,507	6,957	----	900	3,782	19,777	----	4,213	38,015	275,066
AabbDdee---	----	177	202	189	----	823	2,507	6,957	----	900	3,782	19,777	----	4,213	38,015	275,066
AabbddEe---	----	177	202	189	----	823	2,507	6,957	----	900	3,782	19,777	----	4,213	38,015	275,066
aaBbDdee---	----	177	202	189	----	823	2,507	6,957	----	900	3,782	19,777	----	4,213	38,015	275,066
aaBbddEe---	----	177	202	189	----	823	2,507	6,957	----	900	3,782	19,777	----	4,213	38,015	275,066
aabbDdEe---	----	177	202	189	----	823	2,507	6,957	----	900	3,782	19,777	----	4,213	38,015	275,066
Aabbddee---	----	177	472	1,171	----	822	7,218	43,590	----	897	10,466	111,560	----	4,204	1,081,706	1,639,488
aaBbddee---	----	177	472	1,171	----	822	7,218	43,590	----	897	10,466	111,560	----	4,204	1,081,706	1,639,488
aabbDdee---	----	177	472	1,171	----	822	7,218	43,590	----	897	10,466	111,560	----	4,204	1,081,706	1,639,488
aabbddEe---	----	177	472	1,171	----	822	7,218	43,590	----	897	10,466	111,560	----	4,204	1,081,706	1,639,488
aabbddee---19,700		42,267	77,333	146,934	78,802	261,504	883,205	3,625,230	39,401	142,907	626,777	4,394,789	157,604	1,002,591	8,252,021	79,065,153
Total--- 21,741		45,036	81,209	152,919	82,832	274,150	931,556	3,847,774	43,481	157,060	699,296	4,984,656	165,664	1,067,514	8,984,906	87,580,048

Table 13.--Theoretical population and genotypic trends of male insects when native population of 2,000 insects (3 autosomal genes BBDDEE plus 1 sex-linked gene AA; female is heterogametic) is overflooded by 198,000 or 396,000 partially sterile insects (aabbddee and a-bbddee) during parental, F_1, F_2, and F_3 generations. Matings between partially sterile insects are assumed to yield no offspring

Genotype	198,000 released with indicated sterility, increase, and generation															
	90 percent, fivefold				80 percent, fivefold				90 percent, tenfold				80 percent, tenfold			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
[illegible]	50	1	0	0	50	1	0	0	100	5	0	0	100	8	2	1
[illegible]	----	1	0	0	----	2	0	0	----	5	2	1	----	12	7	5
[illegible]	----	1	0	0	----	2	0	0	----	5	2	1	----	12	7	5
[illegible]	----	1	0	0	----	2	0	0	----	5	2	1	----	12	7	5
[illegible]	----	1	0	0	----	2	0	0	----	5	2	1	----	12	7	5
[illegible]	----	0	0	0	----	1	0	0	----	1	1	1	----	4	7	10
[illegible]	----	0	0	0	----	1	0	0	----	1	1	1	----	4	7	10
[illegible]	----	0	0	0	----	1	0	0	----	1	1	1	----	4	7	10
[illegible]	----	0	0	0	----	1	0	0	----	1	1	1	----	4	7	10
[illegible]	----	1	0	0	----	3	1	1	----	7	6	7	----	21	32	47
[illegible]	----	1	0	0	----	3	1	1	----	7	6	7	----	21	32	47
[illegible]	----	1	0	0	----	3	1	1	----	7	6	7	----	21	32	47
[illegible]	----	1	0	0	----	3	1	1	----	7	6	7	----	21	32	47
[illegible]	----	1	0	0	----	3	1	1	----	7	6	7	----	21	32	47
[illegible]	----	1	0	0	----	3	1	1	----	7	6	7	----	21	32	47
[illegible]	----	0	0	0	----	1	1	1	----	3	5	12	----	9	35	99
[illegible]	----	0	0	0	----	1	1	1	----	3	5	12	----	9	35	99
[illegible]	----	0	0	0	----	1	1	1	----	3	5	12	----	9	35	99
[illegible]	----	0	0	0	----	1	1	1	----	3	5	12	----	9	35	99
[illegible]	----	0	0	0	----	1	1	1	----	3	5	12	----	9	35	99
[illegible]	----	0	0	0	----	1	1	1	----	3	5	12	----	9	35	99
[illegible]	----	0	0	0	----	1	1	1	----	3	5	12	----	9	35	99
[illegible]	----	0	0	0	----	1	1	1	----	3	5	12	----	9	35	99
[illegible]	----	0	0	0	----	1	1	1	----	3	5	12	----	9	35	99
[illegible]	----	2	1	0	----	6	6	6	----	13	26	57	----	38	154	450
[illegible]	----	2	1	0	----	6	6	6	----	13	26	57	----	38	154	450
[illegible]	----	2	1	0	----	6	6	6	----	13	26	57	----	38	154	450
[illegible]	----	2	1	0	----	6	6	6	----	13	26	57	----	38	154	450
[illegible]	----	0	0	0	----	1	0	0	----	1	6	26	----	4	43	239
[illegible]	----	0	0	0	----	1	0	0	----	1	6	26	----	4	43	239
[illegible]	----	0	0	0	----	1	0	0	----	1	6	26	----	4	43	239
[illegible]	----	0	0	0	----	1	0	0	----	1	6	26	----	4	43	239
[illegible]	----	0	0	0	----	1	0	0	----	1	6	26	----	4	43	239
[illegible]	----	0	0	0	----	1	0	0	----	1	6	26	----	4	43	239
[illegible]	----	1	1	0	----	3	8	15	----	6	27	116	----	17	183	1,053
[illegible]	----	1	1	0	----	3	8	15	----	6	27	116	----	17	183	1,053
[illegible]	----	1	1	0	----	3	8	15	----	6	27	116	----	17	183	1,053
[illegible]	----	1	1	0	----	3	8	15	----	6	27	116	----	17	183	1,053
[illegible]	----	1	1	0	----	3	8	15	----	6	27	116	----	17	183	1,053
[illegible]	----	1	1	0	----	3	8	15	----	6	27	116	----	17	183	1,053
[illegible]	----	1	1	0	----	3	8	15	----	6	27	116	----	17	183	1,053
[illegible]	----	1	1	0	----	3	8	15	----	6	27	116	----	17	183	1,053
[illegible]	----	1	1	0	----	3	8	15	----	6	27	116	----	17	183	1,053
[illegible]	----	1	1	0	----	3	8	15	----	6	27	116	----	17	183	1,053
[illegible]	----	1	1	0	----	3	8	15	----	6	27	116	----	17	183	1,053
[illegible]	----	0	1	1	----	1	10	43	----	3	33	275	----	9	242	2,784
[illegible]	----	0	1	1	----	1	10	43	----	3	33	275	----	9	242	2,784
[illegible]	----	0	1	1	----	1	10	43	----	3	33	275	----	9	242	2,784
[illegible]	----	0	1	1	----	1	10	43	----	3	33	275	----	9	242	2,784
[illegible]	----	0	1	1	----	1	10	43	----	3	33	275	----	9	242	2,784
[illegible]	----	0	1	1	----	1	10	43	----	3	33	275	----	9	242	2,784
[illegible]	----	0	1	1	----	1	10	43	----	3	33	275	----	9	242	2,784
[illegible]	----	0	1	1	----	1	10	43	----	3	33	275	----	9	242	2,784
[illegible]	----	0	1	1	----	1	10	43	----	3	33	275	----	9	242	2,784
[illegible]	----	0	1	1	----	1	10	43	----	3	33	275	----	9	242	2,784
[illegible]	----	0	1	1	----	1	10	43	----	3	33	275	----	9	242	2,784
[illegible]	----	0	1	1	----	1	10	43	----	3	33	275	----	9	242	2,784
[illegible]	990	161	29	7	1,980	578	272	218	1,980	819	653	1,224	3,960	2,955	4,531	11,151
[illegible]	----	0	1	3	----	1	15	131	----	1	44	738	----	4	340	8,097
[illegible]	----	0	1	3	----	1	15	131	----	1	44	738	----	4	340	8,097
[illegible]	----	0	1	3	----	1	15	131	----	1	44	738	----	4	340	8,097
[illegible]	----	0	1	3	----	1	15	131	----	1	44	738	----	4	340	8,097
[illegible]	----	89	48	25	----	409	522	808	----	451	966	3,349	----	2,087	8,159	36,047
[illegible]	----	89	48	25	----	409	522	808	----	451	966	3,349	----	2,087	8,159	36,047
[illegible]	----	89	48	25	----	409	522	808	----	451	966	3,349	----	2,087	8,159	36,047
[illegible]	----	89	48	25	----	409	522	808	----	451	966	3,349	----	2,087	8,159	36,047
[illegible]	----	88	108	112	----	407	1,286	3,822	----	445	2,037	12,153	----	2,070	19,242	150,481
[illegible]	----	88	108	112	----	407	1,286	3,822	----	445	2,037	12,153	----	2,070	19,242	150,481
[illegible]	----	88	108	112	----	407	1,286	3,822	----	445	2,037	12,153	----	2,070	19,242	150,481
[illegible]	----	88	108	112	----	407	1,286	3,822	----	445	2,037	12,153	----	2,070	19,242	150,480
[illegible]	----	88	108	112	----	407	1,286	3,822	----	445	2,037	12,153	----	2,070	19,242	150,480
[illegible]	----	88	108	112	----	407	1,286	3,822	----	445	2,037	12,153	----	2,070	19,242	150,480
[illegible]	----	88	290	621	----	405	3,560	21,662	----	443	5,236	57,245	----	2,062	52,104	781,080
[illegible]	----	88	290	621	----	405	3,560	21,662	----	443	5,236	57,245	----	2,062	52,104	781,080
[illegible]	----	88	290	621	----	405	3,560	21,662	----	443	5,236	57,245	----	2,062	52,104	781,080
[illegible]	----	88	290	621	----	405	3,560	21,662	----	443	5,236	57,245	----	2,062	52,104	781,080
[illegible]	1,980	10,525	19,470	37,680	19,602	64,754	218,429	895,752	9,801	35,445	156,959	1,110,277	39,204	246,776	1,998,203	18,837,888
Total	1,980	11,955	21,525	45,967	21,632	71,151	243,078	1,010,071	11,881	42,786	195,771	1,435,021	43,264	279,555	2,367,237	23,103,616

Table 13.--Theoretical population and genotypic trends of male insects when native population of 2,000 insects (3 autosomal genes BBDDEE plus 1 sex-linked gene AA; female is heterogametic) is overflooded by 198,000 or 396,000 partially sterile insects (aabbddee and a-bbddee) during parental, F_1, F_2, and F_3 generations. Matings between partially sterile insects are assumed to yield no offspring--Continued

Genotype	396,000 released with indicated sterility, increase, and generation															
	90 percent, fivefold				80 percent, fivefold				90 percent, tenfold				80 percent, tenfold			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
AABBDDEE	25	0	0	0	25	0	0	0	50	1	0	0	50	3	1	0
AABBDDEe	----	0	0	0	----	1	0	0	----	2	0	0	----	5	2	1
AABBDdEE	----	0	0	0	----	1	0	0	----	2	0	0	----	5	2	1
AABbDDEE	----	0	0	0	----	1	0	0	----	2	0	0	----	5	2	1
AaBBDDEE	----	0	0	0	----	1	0	0	----	2	0	0	----	5	2	1
AABBDDee	----	0	0	0	----	0	0	0	----	1	0	0	----	2	3	3
AABBddEE	----	0	0	0	----	0	0	0	----	1	0	0	----	2	3	3
AAbbDDEE	----	0	0	0	----	0	0	0	----	1	0	0	----	2	3	3
aaBBDDEE	----	0	0	0	----	0	0	0	----	1	0	0	----	2	3	3
AABBDdEe	----	0	0	0	----	1	0	0	----	3	2	2	----	10	12	14
AABbDDEe	----	0	0	0	----	1	0	0	----	3	2	2	----	10	12	14
AABbDdEE	----	0	0	0	----	1	0	0	----	3	2	2	----	10	12	14
AaBBDDEe	----	0	0	0	----	1	0	0	----	3	2	2	----	10	12	14
AaBBDdEE	----	0	0	0	----	1	0	0	----	3	2	2	----	10	12	14
AaBbDDEE	----	0	0	0	----	1	0	0	----	3	2	2	----	10	12	14
AABBDdee	----	0	0	0	----	1	1	1	----	1	2	4	----	4	15	37
AABBddEe	----	0	0	0	----	1	1	1	----	1	2	4	----	4	15	37
AABbDDee	----	0	0	0	----	1	1	1	----	1	2	4	----	4	15	37
AABbddEE	----	0	0	0	----	1	1	1	----	1	2	4	----	4	15	37
AAbbDDEe	----	0	0	0	----	1	1	1	----	1	2	4	----	4	15	37
AAbbDdEE	----	0	0	0	----	1	1	1	----	1	2	4	----	4	15	37
AaBBDDee	----	0	0	0	----	1	1	1	----	1	2	4	----	4	15	37
AaBBddEE	----	0	0	0	----	1	1	1	----	1	2	4	----	4	15	37
AabbDDEE	----	0	0	0	----	1	1	1	----	1	2	4	----	4	15	37
aaBBDDEe	----	0	0	0	----	1	1	1	----	1	2	4	----	4	15	37
aaBBDdEE	----	0	0	0	----	1	1	1	----	1	2	4	----	4	15	37
aaBbDDEE	----	0	0	0	----	1	1	1	----	1	2	4	----	4	15	37
AABbDdEe	----	1	0	0	----	3	3	2	----	6	9	16	----	19	66	161
AaBBDdEe	----	1	0	0	----	3	3	2	----	6	9	16	----	19	66	161
AaBbDDEe	----	1	0	0	----	3	3	2	----	6	9	16	----	19	66	161
AaBbDdEE	----	1	0	0	----	3	3	2	----	6	9	16	----	19	66	161
AABBddee	----	0	0	0	----	0	1	2	----	1	3	10	----	2	21	105
AAbbDDee	----	0	0	0	----	0	1	2	----	1	3	10	----	2	21	105
AAbbddEE	----	0	0	0	----	0	1	2	----	1	3	10	----	2	21	105
aaBBDDee	----	0	0	0	----	0	1	2	----	1	3	10	----	2	21	105
aaBBddEE	----	0	0	0	----	0	1	2	----	1	3	10	----	2	21	105
aabbDDEE	----	0	0	0	----	0	1	2	----	1	3	10	----	2	21	105
AABbDdee	----	0	0	0	----	1	4	6	----	3	11	41	----	9	87	445
AABbddEe	----	0	0	0	----	1	4	6	----	3	11	41	----	9	87	445
AAbbDdEe	----	0	0	0	----	1	4	6	----	3	11	41	----	9	87	445
AaBBDdee	----	0	0	0	----	1	4	6	----	3	11	41	----	9	87	445
AaBBddEe	----	0	0	0	----	1	4	6	----	3	11	41	----	9	87	445
AaBbDDee	----	0	0	0	----	1	4	6	----	3	11	41	----	9	87	445
AaBbddEE	----	0	0	0	----	1	4	6	----	3	11	41	----	9	87	445
AabbDDEe	----	0	0	0	----	1	4	6	----	3	11	41	----	9	87	445
AabbDdEE	----	0	0	0	----	1	4	6	----	3	11	41	----	9	87	445
aaBBDdEe	----	0	0	0	----	1	4	6	----	3	11	41	----	9	87	445
aaBbDDEe	----	0	0	0	----	1	4	6	----	3	11	41	----	9	87	445
aaBbDdEE	----	0	0	0	----	1	4	6	----	3	11	41	----	9	87	445
AABbddee	----	0	0	0	----	1	5	20	----	1	15	117	----	4	122	1,338
AAbbDdee	----	0	0	0	----	1	5	20	----	1	15	117	----	4	122	1,338
AAbbddEe	----	0	0	0	----	1	5	20	----	1	15	117	----	4	122	1,338
AaBBddee	----	0	0	0	----	1	5	20	----	1	15	117	----	4	122	1,338
AaBbDDee	----	0	0	0	----	1	5	20	----	1	15	117	----	4	122	1,338
AaBbddEE	----	0	0	0	----	1	5	20	----	1	15	117	----	4	122	1,338
AabbDDEe	----	0	0	0	----	1	5	20	----	1	15	117	----	4	122	1,338
AabbDdEE	----	0	0	0	----	1	5	20	----	1	15	117	----	4	122	1,338
aaBBDdee	----	0	0	0	----	1	5	20	----	1	15	117	----	4	122	1,338
aaBbDDee	----	0	0	0	----	1	5	20	----	1	15	117	----	4	122	1,338
aaBbDdEE	----	0	0	0	----	1	5	20	----	1	15	117	----	4	122	1,338
aabbDDEe	----	0	0	0	----	1	5	20	----	1	15	117	----	4	122	1,338
aabbDdEE	----	0	0	0	----	1	5	20	----	1	15	117	----	4	122	1,338
AaBbDdEe	995	125	19	4	1,990	499	201	132	1,990	640	401	571	3,980	2,557	3,271	6,371
AAbbddee	----	0	1	1	----	0	7	66	----	1	22	354	----	2	177	4,249
aaBBddee	----	0	1	1	----	0	7	66	----	1	22	354	----	2	177	4,249
aabbDDee	----	0	1	1	----	0	7	66	----	1	22	354	----	2	177	4,249
aabbddEE	----	0	1	1	----	0	7	66	----	1	22	354	----	2	177	4,249
AaBbDdee	----	89	39	17	----	413	465	620	----	453	769	2,105	----	2,115	7,223	26,669
AaBbddEe	----	89	39	17	----	413	465	620	----	453	769	2,105	----	2,115	7,223	26,669
AabbDdEe	----	89	39	17	----	413	465	620	----	453	769	2,105	----	2,115	7,223	26,669
aaBbDdEe	----	89	39	17	----	413	465	620	----	453	769	2,105	----	2,115	7,223	26,669
AaBbddee	----	89	101	94	----	412	1,253	3,478	----	450	1,891	9,888	----	2,106	19,007	137,527
AabbDdee	----	89	101	94	----	412	1,253	3,478	----	450	1,891	9,888	----	2,106	19,007	137,527
AabbddEe	----	89	101	94	----	412	1,253	3,478	----	450	1,891	9,888	----	2,106	19,007	137,527
aaBbDdee	----	89	101	94	----	412	1,253	3,478	----	450	1,891	9,888	----	2,106	19,007	137,527
aaBbddEe	----	89	101	94	----	412	1,253	3,478	----	450	1,891	9,888	----	2,106	19,007	137,527
aabbDdEe	----	89	101	94	----	412	1,253	3,478	----	450	1,891	9,888	----	2,106	19,007	137,527
Aabbddee	----	88	286	586	----	411	3,609	21,795	----	449	5,233	55,779	----	2,102	54,084	819,703
aaBbddee	----	88	286	586	----	411	3,609	21,795	----	449	5,233	55,779	----	2,102	54,084	819,703
aabbDdee	----	88	286	586	----	411	3,609	21,795	----	449	5,233	55,779	----	2,102	54,084	819,703
aabbddEe	----	88	286	586	----	411	3,609	21,795	----	449	5,233	55,779	----	2,102	54,084	819,703
aabbddee	9,850	21,133	38,666	73,467	39,401	130,752	441,601	1,812,597	19,700	71,454	313,387	2,197,379	78,802	501,294	4,125,979	39,532,192
Total-----	10,870	22,518	40,605	76,459	41,416	137,075	465,776	1,923,866	21,741	78,530	349,646	2,492,303	82,832	533,756	4,492,411	43,789,424

Table 14.--Theoretical population and genotypic trends of female insects when native population of 2,000 insects (3 autosomal genes BBDDEE plus 1 sex-linked gene AA; female is heterogametic) is overflooded by 198,000 or 396,000 partially sterile insects (aabbddee and a-bbddee) during parental, F_1, F_2, and F_3 generations. Matings between partially sterile insects are assumed to yield no offspring

Genotype	198,000 released with indicated sterility, increase, and generation															
	90 percent, fivefold				80 percent, fivefold				90 percent, tenfold				80 percent, tenfold			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
A BBDDEE --- 50	1	0	0	50	2	0	0	100	7	1	1	100	15	6	3
A BBDDEe --- ----	1	0	0	----	3	1	0	----	9	4	4	----	22	23	29
A BBDdEE --- ----	1	0	0	----	3	1	0	----	9	4	4	----	22	23	29
A BbDDEE --- ----	1	0	0	----	3	1	0	----	9	4	4	----	22	23	29
A BBDDee --- ----	0	0	0	----	1	1	1	----	3	4	7	----	9	2	60
A BBddEE --- ----	0	0	0	----	1	1	1	----	3	4	7	----	9	2	60
A bbDDEE --- ----	0	0	0	----	1	1	1	----	3	4	7	----	9	2	60
A BBDdEe --- ----	2	0	0	----	6	4	4	----	14	19	35	----	40	109	272
A BbDDEe --- ----	2	0	0	----	6	4	4	----	14	19	35	----	40	109	272
A BbDdEE --- ----	2	0	0	----	6	4	4	----	14	19	35	----	40	109	272
A BBDdee --- ----	1	0	0	----	3	5	9	----	6	19	70	----	17	126	625
A BBddEe --- ----	1	0	0	----	3	5	9	----	6	19	70	----	17	126	625
A BbDDee --- ----	1	0	0	----	3	5	9	----	6	19	70	----	17	126	625
A BbddEE --- ----	1	0	0	----	3	5	9	----	6	19	70	----	17	126	625
A bbDDEe --- ----	1	0	0	----	3	5	9	----	6	19	70	----	17	126	625
A bbDdEE --- ----	1	0	0	----	3	5	9	----	6	19	70	----	17	126	625
a BBDDEE --- ----	1	0	0	----	2	0	0	----	4	2	2	----	10	11	13
A BbDdEe ---495	82	15	4	990	295	142	115	990	423	352	669	1,980	1,515	2,420	6,026
a BBDDEe --- ----	1	0	0	----	3	2	2	----	7	8	16	----	19	50	122
a BBDdEE --- ----	1	0	0	----	3	2	2	----	7	8	16	----	19	50	122
a BbDDEE --- ----	1	0	0	----	3	2	2	----	7	8	16	----	19	50	122
A BBddee --- ----	0	1	1	----	1	7	25	----	3	22	163	----	9	164	1,631
A bbBBee --- ----	0	1	1	----	1	7	25	----	3	22	163	----	9	164	1,631
A bbddEE --- ----	0	1	1	----	1	7	25	----	3	22	163	----	9	164	1,631
A BbDdee --- ----	45	24	13	----	207	269	419	----	231	510	1,791	----	1,061	4,263	19,077
A BbddEe --- ----	45	24	13	----	207	269	419	----	231	510	1,791	----	1,061	4,263	19,077
A bbDdEe --- ----	45	24	13	----	207	269	419	----	231	510	1,791	----	1,061	4,263	19,077
a BBDDee --- ----	0	0	0	----	1	3	4	----	3	9	32	----	9	60	289
a BBddEE --- ----	0	0	0	----	1	3	4	----	3	9	32	----	9	60	289
a bbDDEE --- ----	0	0	0	----	1	3	4	----	3	9	32	----	9	60	289
a BBDdEe --- ----	2	1	0	----	5	11	18	----	12	39	145	----	36	260	128
a BbDDEe --- ----	2	1	0	----	5	11	18	----	12	39	145	----	36	260	128
a BbDdEE --- ----	2	1	0	----	5	11	18	----	12	39	145	----	36	260	128
A Bbddee --- ----	44	55	57	----	205	653	1,954	----	225	1,051	6,352	----	1,044	9,863	78,026
A bbDdee --- ----	44	55	57	----	205	653	1,954	----	225	1,051	6,352	----	1,044	9,863	78,026
A bbddEe --- ----	44	55	57	----	205	653	1,954	----	225	1,051	6,352	----	1,044	9,863	78,026
a BBDdee --- ----	1	1	1	----	3	14	51	----	6	46	333	----	17	334	3,310
a BBddEe --- ----	1	1	1	----	3	14	51	----	6	46	333	----	17	334	3,310
a BbDDee --- ----	1	1	1	----	3	14	51	----	6	46	333	----	17	334	3,310
a BbddEE --- ----	1	1	1	----	3	14	51	----	6	46	333	----	17	334	3,310
a bbDDEe --- ----	1	1	1	----	3	14	51	----	6	46	333	----	17	334	3,310
a bbDdEE --- ----	1	1	1	----	3	14	51	----	6	46	333	----	17	334	3,310
a BbDdEe ---· 495	169	62	28	990	698	658	917	990	861	1,293	3,961	1,980	3,565	10,425	41,623
a BBddee --- ----	0	1	3	----	1	20	152	----	3	60	876	----	9	461	9,489
a bbDDee --- ----	0	1	3	----	1	20	152	----	3	60	876	----	9	461	9,489
a bbddEE --- ----	0	1	3	----	1	20	152	----	3	60	876	----	9	461	9,489
A bbddee --- ---- 44	146	313	----	203	1,794	10,962	----	223	2,661	29,361	----	1,035	26,392	398,638
a BbDdee --- ---- 132	132	124	----	611	1,547	4,226	----	671	2,520	13,827	----	3,114	23,322	168,505
a BbddEe --- ---- 132	132	124	----	611	1,547	4,226	----	671	2,520	13,827	----	3,114	23,322	168,505
a bbDdEe --- ---- 132	132	124	----	611	1,547	4,226	----	671	2,520	13,827	----	3,114	23,322	168,505
a Bbddee --- ---- 132	344	677	----	609	4,203	23,573	----	665	6,254	63,322	----	3,097	61,725	856,318
a bbDdee --- ---- 132	344	677	----	609	4,203	23,573	----	665	6,254	63,322	----	3,097	61,725	856,318
a bbddEe --- ---- 132	344	677	----	609	4,203	23,573	----	665	6,254	63,322	----	3,097	61,725	856,318
a bbddee 4,900 10,568	19,615	37,990	19,602	64,957	220,209	906,583	9,801	35,666	159,577	1,138,900	39,204	247,807	2,024,255	19,228,432
Total---- 5,940 11,955	21,525	40,967	21,632	71,150	243,078	1,010,071	11,881	42,786	195,771	1,435,022	43,264	279,555	2,367,239	23,103,616

Table 14.--Theoretical population and genotypic trends of female insects when native population of 2,000 insects (3 autosomal genes BBDDEE plus 1 sex-linked gene AA; female is heterogametic) is overflooded by 198,000 or 396,000 partially sterile insects (aabbddee and a-bbddee) during parental, F_1, F_2, and F_3 generations. Matings between partially sterile insects are assumed to yield no offspring--Continued

Genotype	396,000 released with indicated sterility, increase, and generation															
	90 percent, fivefold				80 percent, fivefold				90 percent, tenfold				80 percent, tenfold			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
A BBDDEE---	25	0	0	0	25	1	0	0	50	2	0	0	50	6	2	1
A BBDDEe---	----	0	0	0	----	1	0	0	----	4	1	1	----	10	9	9
A BBDdEE---	----	0	0	0	----	1	0	0	----	4	1	1	----	10	9	9
A BbDDEE---	----	0	0	0	----	1	0	0	----	4	1	1	----	10	9	9
A BBDDee---	----	0	0	0	----	1	0	0	----	1	1	2	----	4	11	22
A BBddEe---	----	0	0	0	----	1	0	0	----	1	1	2	----	4	11	22
A bbDDEe---	----	0	0	0	----	1	0	0	----	1	1	2	----	4	11	22
A BBDdEe---	----	1	0	0	----	3	2	1	----	6	7	10	----	19	45	95
A BbDDEe---	----	1	0	0	----	3	2	1	----	6	7	10	----	19	45	95
A BbDdEE---	----	1	0	0	----	3	2	1	----	6	7	10	----	19	45	95
A BBDdEE---	----	0	0	0	----	1	2	4	----	3	8	24	----	9	59	260
A BBddEe---	----	0	0	0	----	1	2	4	----	3	8	24	----	9	59	260
A BbDDee---	----	0	0	0	----	1	2	4	----	3	8	24	----	9	59	260
A BbddEE---	----	0	0	0	----	1	2	4	----	3	8	24	----	9	59	260
A bbDDEe---	----	0	0	0	----	1	2	4	----	3	8	24	----	9	59	260
A bbDdEE---	----	0	0	0	----	1	2	4	----	3	8	24	----	9	59	260
a BBDDEE---	----	0	0	0	----	1	0	0	----	2	1	0	----	5	4	4
A BbDdEe---	497	64	10	2	995	252	103	68	995	326	210	302	1,990	1,297	1,701	3,347
a BBDDEe---	----	0	0	0	----	1	1	1	----	3	3	4	----	9	22	44
a BBDdEE---	----	0	0	0	----	1	1	1	----	3	3	4	----	9	22	44
a BbDDEE---	----	0	0	0	----	1	1	1	----	3	3	4	----	9	22	44
A BBddee---	----	0	0	0	----	1	3	12	----	1	10	68	----	4	82	774
A bbDDee---	----	0	0	0	----	1	3	12	----	1	10	68	----	4	82	774
A bbddEE---	----	0	0	0	----	1	3	12	----	1	10	68	----	4	82	774
A BbDdee---	----	45	20	9	----	208	236	317	----	229	396	1,094	----	1,066	3,698	13,780
A BbddEe---	----	45	20	9	----	208	236	317	----	229	396	1,094	----	1,066	3,698	13,780
A bbDdEe---	----	45	20	9	----	208	236	317	----	229	396	1,094	----	1,066	3,698	13,780
a BBDDee---	----	0	0	0	----	1	1	2	----	1	4	11	----	4	29	124
a BBddEE---	----	0	0	0	----	1	1	2	----	1	4	11	----	4	29	124
a bbDDEE---	----	0	0	0	----	1	1	2	----	1	4	11	----	4	29	124
a BBDdEe---	----	1	0	0	----	3	5	8	----	6	16	50	----	18	120	526
a BbDDEe---	----	1	0	0	----	3	5	8	----	6	16	50	----	18	120	526
a BbDdEE---	----	1	0	0	----	3	5	8	----	6	16	50	----	18	120	526
A Bbddee---	----	45	51	48	----	206	632	1,759	----	226	961	5,061	----	1,058	9,626	70,101
A bbDdee---	----	45	51	48	----	206	632	1,759	----	226	961	5,061	----	1,058	9,626	70,101
A bbddEe---	----	45	51	48	----	206	632	1,759	----	226	961	5,061	----	1,058	9,626	70,101
a BBDdee---	----	0	1	0	----	1	7	23	----	3	21	137	----	9	166	1,560
a BBddEe---	----	0	1	0	----	1	7	23	----	3	21	137	----	9	166	1,560
a BbDDee---	----	0	1	0	----	1	7	23	----	3	21	137	----	9	166	1,560
a BbddEE---	----	0	1	0	----	1	7	23	----	3	21	137	----	9	166	1,560
a bbDDEe---	----	0	1	0	----	1	7	23	----	3	21	137	----	9	166	1,560
a bbDdEE---	----	0	1	0	----	1	7	23	----	3	21	137	----	9	166	1,560
a BbDdEe---	497	152	49	19	995	662	565	686	994	773	969	390	1,990	3,394	8,858	29,854
a BBddee---	----	0	1	1	----	1	10	76	----	1	30	412	----	4	238	4,918
a bbDDee---	----	0	1	1	----	1	10	76	----	1	30	412	----	4	238	4,918
a bbddEE---	----	0	1	1	----	1	10	76	----	1	30	412	----	4	238	4,918
A bbddee---	----	44	143	294	----	206	1,812	10,963	----	225	2,638	28,243	----	1,053	27,220	41,411
a BbDdee---	----	133	121	103	----	618	1,486	3,789	----	676	2,276	10,940	----	3,164	22,618	150,861
a BbddEe---	----	133	121	103	----	618	1,486	3,789	----	676	2,276	10,940	----	3,164	22,618	150,861
a bbDdEe---	----	133	121	103	----	618	1,486	3,789	----	676	2,276	10,940	----	3,164	22,618	150,861
a Bbddee---	----	133	336	633	----	617	4,235	23,534	----	674	6,178	60,722	----	3,155	63,588	888,475
a bbDdee---	----	133	336	633	----	617	4,235	23,534	----	674	6,178	60,722	----	3,155	63,588	888,475
a bbddEe---	----	133	336	633	----	617	4,235	23,534	----	674	6,178	60,722	----	3,155	63,588	888,475
a bbddee---	9,850	21,178	38,809	73,759	39,401	130,957	443,405	1,823,495	19,700	71,678	316,004	2,225,268	78,802	502,345	4,153,020	39,942,048
Total---	10,870	22,518	40,605	76,459	41,416	137,075	465,776	1,923,866	21,741	78,530	349,646	2,492,301	82,832	533,756	4,492,413	43,789,456

Table 15.—Interpretations and transcriptions used to derive tables 16-27 from tables 4-14

Inheritance of conditional lethal trait			Genotypes of			Transcriptions and tables used to obtain number of survivors in tables 16-27
Trait 1	Trait 2	Trait 3	Native strain	Release strain	survivors	
1 dom. auto.	----	----	aa	AA	aa	None, use tables 3 and 9 directly.
2 auto. (4)	----	----	AABB	aabb	AABB	None, use tables 4 and 10 to obtain table 16.
2 auto. (3,4)	----	----	AABB	aabb	AABB, AaBB, AABb	Do.
2 auto. (5,6)	----	----	AABBDD	aabbdd	AABBDD, AaBBDD, AABbDD, AABBDd	None, use tables 5 and 11 to obtain table 17.
3 auto. (4-6)	----	----	AABBDD	aabbdd	AABBDD, AaBBDD, AaBbDD, aaBBDD, etc.	Do.
4 auto. (7,8)	----	----	AABBDDEE	aabbddee	AABBDDEE, AaBBDDEE	None, use tables 6 and 12 to obtain table 18.
4 auto. (6-8)	----	----	AABBDDEE	aabbddee	AABBDDEE, AaBBDDEE, AaBbDDEE, aaBBDDEE, etc.	Do.
3 auto. + 1 s.l. (6-9)	----	----	AABBDDEE	aabbddee	Males AABBDDEE, aaBBDDEE, AAbbDdEE, etc., and corresponding female genotypes	None, use tables 7, 8, 13, and 14 to obtain table 19.
1 dom. auto.	1 dom. auto.	----	aabb	AABB	aabb	a to A and b to B in tables 4 and 10 to obtain table 20.
1 dom. auto.	2 auto. (3,4)	----	aaBBDD	AABbdd	AABBDD, AABBDd, AABbDd	a to A in tables 5 and 11 to obtain table 21.
1 dom. auto.	3 auto. (5-6)	----	aaBBDDFF	AAbbddee	aaBBDDEE, aaBbDDEE, aaBBDdEE, aaBbDdEE, etc.	a to A in tables 6 and 12 to obtain table 22.
2 auto. (3,4)	2 auto. (3,4)	----	AABBDDEE	aabbddee	AABBDDEE, AaBBDDEE, AABBDdEE, AaBbDdEE	None, use tables 6 and 12 to obtain table 23.
1 dom. s.l.	3 auto. (5-6)	----	aaBBDDFF	AAbbddee	aaBBDDEE, aaBBDdEE, aaBbDDEE, aaBbDdEE, etc., and corresponding female genotypes	a to A in tables 7, 8, 13, and 14 to obtain table 24.
1 dom. auto.	1 dom. auto.	1 dom. auto.	aabbdd	AABBDD	aabbdd	a to A and b to B and d to D in tables 5 and 11 to obtain table 25.
1 dom. auto.	1 dom. auto.	2 auto. (3,4)	aabbDDEE	AABBddee	aabbDDEE, aabbDdEE, aabbDDEe	a to A and b to B in tables 6 and 12 to obtain table 26.
1 dom. s.l.	1 dom. auto.	2 auto. (3,4)	aabbDDEE	AABBddee	aabbDDEE, aabbDdEE, aabbDDEe, etc., and corresponding female genotypes	a to A and b to B in tables 7, 8, 13, and 14 to obtain table 27

Table 16.--Numbers in each generation in which conditional lethal traits cannot be expressed when native population of 2,000 insects (AABB) was overflooded in parental, F_1, F_2, and F_3 generations by partially sterile insects (aabb) with 1 conditional lethal trait

Number released	Sterility	Rate of increase	Generation	No offspring from matings between partially sterile insects: 4 dom. alleles	3,4 dom. alleles	Total	Proportionate offspring from matings between partially sterile insects: 4 dom. alleles	3,4 dom. alleles	Total
	Percent								
198,000--	90	Fivefold---	F_1	100	100	2,080	100	100	11,881
			F_2	9	39	2,167	8	36	23,911
			F_3	1	9	2,261	1	13	43,048
			F_4	0	2	2,362	0	8	81,937
198,000--	80	---do---	F_1	100	100	4,060	100	100	43,264
			F_2	29	135	8,361	25	115	142,302
			F_3	10	110	17,747	14	164	486,161
			F_4	4	92	39,874	14	348	2,020,164
198,000--	90	Tenfold---	F_1	200	200	4,160	200	200	23,762
			F_2	70	304	9,006	64	276	85,569
			F_3	33	313	21,145	57	599	391,547
			F_4	25	409	58,609	123	2,539	2,870,101
198,000--	80	---do---	F_1	200	200	8,120	200	200	86,528
			F_2	231	1,069	34,589	167	773	559,111
			F_3	373	3,761	168,148	384	3,994	4,734,508
			F_4	1,219	18,727	1,135,905	1,031	23,577	46,207,951
396,000--	90	Fivefold ---	F_1	50	50	2,040	50	50	21,740
			F_2	4	18	2,082	4	18	45,037
			F_3	0	2	2,125	1	7	81,212
			F_4	0	0	2,172	0	2	152,918
396,000--	80	---do---	F_1	50	50	4,030	50	50	82,832
			F_2	14	66	8,182	11	55	274,150
			F_3	4	48	16,862	6	74	931,555
			F_4	1	33	35,787	6	152	3,847,779
396,000--	90	Tenfold---	F_1	100	100	4,080	100	100	43,482
			F_2	30	138	8,493	27	127	157,062
			F_3	11	117	18,416	21	247	699,296
			F_4	5	103	43,372	39	945	4,984,668
396,000--	90	---do---	F_1	100	100	8,060	100	100	165,664
			F_2	108	520	33,206	78	374	1,067,517
			F_3	141	1,579	148,237	151	1,833	8,984,915
			F_4	313	6,065	835,211	406	10,380	87,580,148

Table 17.--Numbers in each generation in which conditional lethal traits cannot be expressed when native population of 2,000 insects (AABBDD) was overflooded in parental, F_1, F_2, and F_3 generations by partially sterile insects (aabbdd) with 1 conditional lethal trait

Number released	Sterility	Rate of increase	Generation	No offspring from matings between partially sterile insects: 5,6 dom. alleles	4-6 dom. alleles	Total	Proportionate offspring from matings between partially sterile insects: 5,6 dom. alleles	4-6 dom. alleles	Total
	Percent								
198,000--	90	Fivefold---	F_1	100	100	2,080	100	100	11,881
			F_2	16	42	2,166	15	41	23,911
			F_3	1	7	2,260	2	12	43,050
			F_4	0	1	2,362	0	4	81,936
198,000--	80	--do--	F_1	100	100	4,060	100	100	43,264
			F_2	52	151	8,365	44	119	142,301
			F_3	14	90	17,747	20	132	486,161
			F_4	4	51	39,873	12	174	2,020,176
198,000--	90	Tenfold---	F_1	200	200	4,160	200	200	23,762
			F_2	126	337	9,005	114	307	85,571
			F_3	50	276	21,144	83	507	391,548
			F_4	29	269	58,607	124	1,442	2,870,116
198,000--	80	--do--	F_1	200	200	8,120	200	200	86,528
			F_2	412	1,183	34,399	298	851	559,111
			F_3	551	3,238	168,148	474	3,196	4,734,505
			F_4	1,483	12,901	1,135,912	939	12,326	46,207,856
396,000--	90	Fivefold---	F_1	50	50	2,040	50	50	21,740
			F_2	7	19	2,082	6	18	45,036
			F_3	0	3	2,126	1	5	81,210
			F_4	0	0	2,171	0	0	152,920
396,000--	80	--do--	F_1	50	50	4,030	50	50	82,832
			F_2	24	72	8,182	20	61	274,150
			F_3	5	38	16,861	8	58	931,557
			F_4	1	16	35,788	4	70	3,847,777
396,000--	90	Tenfold---	F_1	101	101	4,081	101	101	43,482
			F_2	54	154	8,494	49	140	157,060
			F_3	15	95	18,414	29	197	699,296
			F_4	5	58	43,374	34	472	4,984,654
396,000--	80	--do--	F_1	101	101	8,060	101	101	165,663
			F_2	192	574	33,206	138	413	1,067,514
			F_3	193	1,089	148,237	194	1,423	8,984,898
			F_4	326	3,589	835,208	326	4,922	87,579,904

Table 18.--Numbers in each generation in which conditional lethal traits cannot be expressed when native population of 2,000 insects (AABBDDEE) was overflooded in parental, F_1, F_2, and F_3 generations by partially sterile insects aabbddee) with 1 conditional lethal trait

Number released	Sterility	Rate of increase	Generation	No offspring from matings between partially sterile insects: 7,8 dom. alleles	6-8 dom. alleles	Total	Proportionate offspring from matings between partially sterile insects: 7,8 dom. alleles	6-8 dom. alleles	Total
	Percent								
198,000--	90	Fivefold---	F_1	100	100	2,080	100	100	11,881
			F_2	7	21	2,166	6	20	23,911
			F_3	0	1	2,260	0	2	43,050
			F_4	0	0	2,362	0	0	81,935
198,000--	80	--do--	F_1	100	100	4,060	100	100	43,264
			F_2	20	70	8,365	17	59	142,301
			F_3	2	15	17,747	2	20	486,159
			F_4	0	3	39,873	1	8	2,020,161
198,000--	90	Tenfold---	F_1	200	200	4,160	200	200	23,762
			F_2	54	168	9,005	50	153	85,571
			F_3	9	59	21,143	13	92	391,545
			F_4	2	22	58,606	8	100	2,870,090
198,000--	80	--do--	F_1	200	200	8,120	200	200	86,528
			F_2	158	548	34,399	114	397	559,110
			F_3	93	626	168,147	62	499	4,734,500
			F_4	157	1,415	1,135,904	44	688	46,207,866
396,000--	90	Fivefold ---	F_1	50	50	2,040	50	50	21,741
			F_2	3	9	2,082	2	9	45,036
			F_3	0	0	2,126	0	1	81,209
			F_4	0	0	2,171	0	0	152,919
396,000--	80	--do --	F_1	50	50	4,030	50	50	82,832
			F_2	9	32	8,182	7	27	274,150
			F_3	1	5	16,861	1	8	931,556
			F_4	0	1	35,788	0	2	3,847,774
396,000--	90	Tenfold ---	F_1	101	101	4,080	101	101	43,482
			F_2	20	71	8,494	19	65	157,060
			F_3	2	16	18,414	4	30	699,296
			F_4	0	3	43,374	1	21	4,984,656
396,000--	80	--do--	F_1	101	101	8,060	101	101	165,664
			F_2	68	254	33,206	49	183	1,067,514
			F_3	24	202	148,238	21	192	8,984,906
			F_4	17	224	835,210	12	209	87,580,048

Table 19.--Numbers in each generation in which conditional lethal traits cannot be expressed when native population of 2,000 insects (3 autosomal genes BBDDEE plus 1 sex-linked gene AA; female is heterogametic) was overflooded in parental, F_1, F_2, and F_3 generations by partially sterile insects (aabbddee, a-bbddee) with 1 conditional lethal trait

Number released	Sterility	Rate of increase	Generation	No offspring from matings between partially sterile insects: Males	Females	Total	Proportionate offspring from matings between partially sterile insects: Males	Females	Total
	Percent								
198,000--	90	Fivefold---	F_1	1,040	545	2,080	1,040	545	11,880
			F_2	139	76	2,166	186	99	23,910
			F_3	13	7	2,322	39	15	43,050
			F_4	2	1	2,772	7	4	81,934
198,000--	80	--do--	F_1	2,030	1,040	4,060	2,030	1,040	43,264
			F_2	460	252	8,364	663	347	142,300
			F_3	156	84	18,214	362	190	486,156
			F_4	70	42	45,974	350	184	2,020,142
198,000--	90	Tenfold---	F_1	2,080	1,090	4,160	2,080	1,090	23,762
			F_2	689	382	9,004	1,014	548	85,572
			F_3	390	218	21,610	1,027	550	391,542
			F_4	342	190	65,288	2,342	1,230	2,870,044
198,000--	80	--do--	F_1	4,060	2,080	8,120	4,060	2,080	86,528
			F_2	2,209	1,242	34,400	3,515	1,855	559,110
			F_3	3,833	2,144	171,406	6,915	3,595	4,734,478
			F_4	14,649	7,997	1,206,836	20,800	4,849	46,207,232
396,000--	90	Fivefold---	F_1	1,020	522	2,040	1,020	522	21,740
			F_2	92	51	2,082	129	67	45,036
			F_3	8	4	2,188	19	10	81,210
			F_4	1	0	2,582	4	2	152,918
396,000--	80	--do--	F_1	2,015	1,020	4,030	2,015	1,020	82,832
			F_2	355	183	8,182	539	274	274,150
			F_3	79	46	17,344	249	121	931,552
			F_4	26	15	42,124	188	95	3,847,732
396,000--	90	Tenfold---	F_1	2,040	1,045	4,080	2,040	1,045	43,482
			F_2	467	242	8,494	724	381	157,060
			F_3	164	92	18,898	539	286	699,292
			F_4	80	44	50,022	925	485	4,984,602
396,000--	80	--do--	F_1	4,030	2,040	8,060	4,030	2,040	165,664
			F_2	1,592	862	33,206	2,826	1,461	1,067,512
			F_3	1,759	961	151,844	4,330	2,256	8,984,826
			F_4	2,880	2,356	921,802	10,229	5,290	87,578,912

Table 20.--Numbers in each generation in which conditional lethal traits cannot be expressed when native population of 2,000 insects (aabb) was overflooded in parental, F_1, F_2, and F_3 generations by partially sterile insects (AABB) with 2 conditional lethal traits

Number released	Sterility	Rate of increase	Generation	No offspring from matings between partially sterile insects		Proportionate offspring from matings between partially sterile insects	
				Survivors	Total offspring	Survivors	Total offspring
	Percent						
198,000--	90	Fivefold---	F_1	100	2,080	100	11,881
			F_2	9	2,167	8	23,911
			F_3	1	2,261	1	43,048
			F_4	0	2,362	0	84,979
198,000--	80	--do--	F_1	100	4,060	100	43,264
			F_2	29	8,361	25	142,302
			F_3	10	17,747	14	486,161
			F_4	4	39,874	14	2,020,164
198,000--	90	Tenfold---	F_1	200	4,160	200	23,762
			F_2	70	9,006	64	85,569
			F_3	33	21,145	57	391,547
			F_4	25	58,609	123	2,870,101
198,000--	80	--do--	F_1	200	8,120	200	86,528
			F_2	230	34,589	167	559,111
			F_3	373	168,148	384	4,734,508
			F_4	1,219	1,135,905	1031	46,207,951
396,000--	90	Fivefold ---	F_1	50	2,040	50	21,740
			F_2	4	2,082	4	45,037
			F_3	0	2,125	0	81,212
			F_4	0	2,172	0	152,918
396,000--	80	--do --	F_1	50	4,030	50	82,832
			F_2	14	8,182	11	274,150
			F_3	4	16,862	6	931,555
			F_4	1	35,787	6	3,847,779
396,000--	90	Tenfold ---	F_1	100	4,080	100	43,482
			F_2	30	8,493	27	157,062
			F_3	11	18,416	21	699,296
			F_4	5	43,372	39	4,984,668
396,000--	80	--do --	F_1	100	8,060	100	165,664
			F_2	108	33,206	78	1,067,517
			F_3	141	148,237	151	8,984,915
			F_4	313	835,211	406	87,580,148

Table 21.--Numbers in each generation in which conditional lethal traits cannot be expressed when native population of 2,000 insects (aaBBDD) was overflooded in parental, F_1, F_2, and F_3 generations by partially sterile insects (AAbbdd) with 2 conditional lethal traits

Number released	Sterility	Rate of increase	Generation	No offspring from matings between partially sterile insects		Proportionate offspring from matings between partially sterile insects	
				Survivors	Total offspring	Survivors	Total offspring
	Percent						
198,000--	90	Fivefold---	F_1	100	2,080	100	11,881
			F_2	12	2,166	11	23,911
			F_3	1	2,260	1	43,050
			F_4	0	2,362	0	81,936
198,000--	80	--do--	F_1	100	4,060	100	43,264
			F_2	38	8,365	32	142,301
			F_3	10	17,747	13	486,161
			F_4	3	39,873	8	2,020,176
198,000--	90	Tenfold---	F_1	200	4,160	200	23,762
			F_2	92	9,005	84	85,571
			F_3	35	21,144	58	391,548
			F_4	20	58,607	84	2,870,116
198,000--	80	--do--	F_1	200	8,120	200	86,528
			F_2	297	34,399	215	559,111
			F_3	382	168,148	326	4,734,505
			F_4	1,015	1,135,912	642	46,207,856
396,000--	90	Fivefold ---	F_1	50	2,040	50	21,740
			F_2	5	2,082	5	45,036
			F_3	0	2,126	0	81,210
			F_4	0	2,171	0	152,920
396,000--	80	--do--	F_1	50	4,030	50	82,832
			F_2	17	8,182	15	274,150
			F_3	4	16,861	5	931,557
			F_4	1	35,788	3	3,847,777
396,000--	90	Tenfold ---	F_1	101	4,081	101	43,482
			F_2	39	8,494	35	157,060
			F_3	10	18,414	20	699,296
			F_4	3	43,374	23	4,984,654
396,000--	80	--do--	F_1	101	8,060	101	165,663
			F_2	138	33,206	99	1,067,514
			F_3	133	148,237	133	8,984,898
			F_4	222	835,208	220	87,579,904

Table 22.--Numbers in each generation in which conditional lethal traits cannot be expressed when native population of 2,000 insects (aaBBDDEE) was overflooded in parental, F_1, F_2, and F_3 generations by partially sterile insects (AAbbddee) with 2 conditional lethal traits

Number released	Sterility	Rate of increase	Generation	No offspring from matings between partially sterile insects		Proportionate offspring from matings between partially sterile insects	
				Survivors	Total offspring	Survivors	Total offspring
	Percent						
198,000--	90	Fivefold---	F_1	100	2,080	100	11,881
			F_2	10	2,166	10	23,911
			F_3	0	2,260	0	43,050
			F_4	0	2,362	0	81,935
198,000--	80	--do--	F_1	100	4,060	100	43,264
			F_2	42	8,365	36	142,301
			F_3	6	17,747	13	486,159
			F_4	0	39,873	3	2,020,161
198,000--	90	Tenfold---	F_1	200	4,160	200	23,762
			F_2	103	9,005	96	85,571
			F_3	31	21,143	52	391,545
			F_4	18	58,606	57	2,870,090
198,000--	80	--do--	F_1	200	8,120	200	86,528
			F_2	329	34,399	239	559,110
			F_3	352	168,147	280	4,734,500
			F_4	784	1,135,904	376	46,207,866
396,000--	90	Fivefold---	F_1	50	2,040	50	21,741
			F_2	6	2,082	6	45,036
			F_3	0	2,126	0	81,209
			F_4	0	2,171	0	152,919
396,000--	80	--do--	F_1	50	4,030	101	82,832
			F_2	19	8,182	19	274,150
			F_3	3	16,861	3	931,556
			F_4	0	35,788	0	3,847,774
396,000--	90	Tenfold---	F_1	101	4,080	101	43,481
			F_2	48	8,494	39	157,060
			F_3	6	18,414	18	699,296
			F_4	3	43,374	12	4,984,656
396,000--	80	--do--	F_1	101	8,060	101	165,664
			F_2	153	33,206	51	1,067,514
			F_3	116	148,238	34	8,984,906
			F_4	148	835,210	33	87,580,048

Table 23.--Numbers in each generation in which conditional lethal traits cannot be expressed when native population of 2,000 insects (AABBDDEE) was overflooded in parental, F_1, F_2, and F_3 generations by partially sterile insects (aabbddee) with 2 conditional lethal traits

Number released	Sterility	Rate of increase	Generation	No offspring from matings between partially sterile insects		Proportionate offspring from matings between partially sterile insects	
				Survivors	Total offspring	Survivors	Total offspring
	Percent						
198,000--	90	Fivefold---	F_1	100	2,080	100	11,881
			F_2	13	2,166	13	23,911
			F_3	0	2,260	0	43,050
			F_4	0	2,362	0	81,935
198,000--	80	--do--	F_1	100	4,060	100	43,264
			F_2	43	8,365	43	142,301
			F_3	8	17,747	16	486,159
			F_4	0	39,873	4	2,020,161
198,000--	90	Tenfold---	F_1	200	4,160	200	23,762
			F_2	122	9,005	113	85,571
			F_3	37	21,143	58	391,545
			F_4	20	58,606	64	2,870,090
198,000--	80	--do--	F_1	200	8,120	200	86,528
			F_2	383	34,399	277	559,110
			F_3	403	168,147	316	4,734,500
			F_4	883	1,135,904	421	46,207,866
396,000--	90	Fivefold---	F_1	50	2,040	50	21,741
			F_2	8	2,082	8	45,036
			F_3	0	2,126	0	81,209
			F_4	0	2,171	0	152,919
396,000--	80	--do--	F_1	50	4,030	50	82,832
			F_2	21	8,182	21	274,150
			F_3	4	16,861	4	931,556
			F_4	0	35,788	0	3,847,774
396,000--	90	Tenfold---	F_1	101	4,080	101	43,481
			F_2	43	8,494	47	157,060
			F_3	8	18,414	20	699,296
			F_4	4	43,374	12	4,984,656
396,000--	80	--do--	F_1	101	8,060	101	165,664
			F_2	177	33,206	126	1,067,514
			F_3	130	148,238	121	8,984,906
			F_4	165	835,210	128	87,580,048

Table 24.--Numbers in each generation in which conditional lethal traits cannot be expressed when native population of 2,000 insects (3 autosomal genes BBDDEE plus 1 sex-linked gene aa; female is heterogametic) was overflooded in parental, F_1, F_2, and F_3 generations by partially sterile insects (AAbbddee, A-bbddee) with 2 conditional lethal traits

Number released	Sterility	Rate of increase	Generation	No offspring from matings between partially sterile insects			Proportionate offspring from matings between partially sterile insects		
				Males	Females	Total	Males	Females	Total
	Percent								
198,000--	90	Fivefold---	F_1	50	50	2,080	50	50	11,880
			F_2	7	10	2,166	7	10	23,910
			F_3	0	0	2,322	0	0	43,050
			F_4	0	0	2,772	0	0	81,934
198,000--	80	--do--	F_1	50	50	4,060	50	50	43,264
			F_2	22	42	8,364	19	32	142,300
			F_3	3	15	18,214	3	18	486,156
			F_4	0	3	45,974	3	15	2,020,142
198,000--	90	Tenfold---	F_1	100	100	4,160	100	100	23,762
			F_2	53	95	9,004	44	85	85,572
			F_3	19	49	21,610	27	82	391,542
			F_4	6	33	65,288	27	139	2,870,044
198,000--	80	--do--	F_1	100	100	8,120	100	100	86,528
			F_2	168	314	34,400	119	228	559,110
			F_3	178	537	171,406	140	408	4,734,478
			F_4	391	1,590	1,206,836	187	1,093	46,207,232
396,000--	90	Fivefold---	F_1	25	25	2,040	25	25	21,740
			F_2	0	6	2,082	0	3	45,036
			F_3	0	0	2,188	0	0	81,210
			F_4	0	0	2,582	0	0	152,918
396,000--	80	--do--	F_1	25	25	4,030	25	25	82,832
			F_2	10	19	8,182	6	16	274,150
			F_3	0	3	17,344	0	6	931,552
			F_4	0	0	42,124	0	3	3,847,732
396,000--	90	Tenfold---	F_1	50	50	4,080	50	50	43,482
			F_2	23	42	8,494	19	35	157,060
			F_3	3	15	18,898	6	27	699,292
			F_4	0	3	50,022	6	39	4,984,602
396,000--	80	--do--	F_1	50	50	8,060	50	50	165,664
			F_2	73	146	33,206	54	105	1,067,512
			F_3	58	191	151,844	52	197	8,984,826
			F_4	75	368	921,802	54	379	87,578,912

Table 25.--Numbers in each generation in which conditional lethal traits cannot be expressed when native population of 2,000 insects (aabbdd) was overflooded in parental, F_1, F_2, and F_3 generations by partially sterile insects (AABBDD) with 3 conditional lethal traits

Number released	Sterility	Rate of increase	Generation	No offspring from matings between partially sterile insects		Proportionate offspring from matings between partially sterile insects	
				Survivors	Total offspring	Survivors	Total offspring
	Percent						
198,000--	90	Fivefold---	F_1	100	2,080	100	11,881
			F_2	3	2,166	3	23,911
			F_3	0	2,260	0	43,050
			F_4	0	2,362	0	81,936
198,000--	80	--do--	F_1	100	4,060	100	43,264
			F_2	9	8,365	7	142,301
			F_3	1	17,747	1	486,161
			F_4	0	39,873	0	2,020,176
198,000--	90	Tenfold---	F_1	200	4,160	200	23,762
			F_2	24	9,005	22	85,571
			F_3	4	21,144	6	391,548
			F_4	2	58,607	5	2,870,116
198,000--	80	--do--	F_1	200	8,120	200	86,528
			F_2	69	34,399	50	559,111
			F_3	45	168,148	32	4,734,505
			F_4	81	1,135,912	33	46,207,856
396,000--	90	Fivefold---	F_1	50	2,040	50	21,740
			F_2	1	2,082	1	45,036
			F_3	0	2,126	0	81,210
			F_4	0	2,171	0	152,920
396,000--	80	--do--	F_1	50	4,030	50	82,832
			F_2	4	8,182	3	274,150
			F_3	0	16,861	0	931,557
			F_4	0	35,788	0	3,847,777
396,000--	90	Tenfold---	F_1	101	4,081	101	43,482
			F_2	9	8,494	8	157,060
			F_3	1	18,414	2	699,296
			F_4	0	43,374	1	4,984,654
396,000--	80	--do--	F_1	101	8,060	101	165,663
			F_2	30	33,206	21	1,067,514
			F_3	13	148,237	12	8,984,898
			F_4	14	835,208	10	87,579,904

Table 26.--Numbers in each generation in which conditional lethal traits cannot be expressed when native population of 2,000 insects (aabbDDEE) was overflooded in parental, F_1, F_2, and F_3 generations by partially sterile insects (AABBddee) with 3 conditional lethal traits

Number released	Sterility	Rate of increase	Generation	No offspring from matings between partially sterile insects: Survivors	No offspring from matings between partially sterile insects: Total offspring	Proportionate offspring from matings between partially sterile insects: Survivors	Proportionate offspring from matings between partially sterile insects: Total offspring
	Percent						
198,000--	90	Fivefold---	F_1	100	2,080	100	11,881
			F_2	3	2,166	3	23,911
			F_3	0	2,260	0	43,050
			F_4	0	2,362	0	81,935
198,000--	80	--do--	F_1	100	4,060	100	43,264
			F_2	11	8,365	11	142,301
			F_3	0	17,747	2	486,159
			F_4	0	39,873	0	2,020,161
198,000--	90	Tenfold---	F_1	200	4,160	200	23,762
			F_2	32	9,005	29	85,571
			F_3	5	21,143	7	391,545
			F_4	2	58,606	4	2,870,090
198,000--	80	--do--	F_1	200	8,120	200	86,528
			F_2	89	34,399	65	559,110
			F_3	49	168,147	32	4,734,500
			F_4	71	1,135,904	23	46,207,866
396,000--	90	Fivefold---	F_1	50	2,040	50	21,741
			F_2	2	2,082	2	45,036
			F_3	0	2,162	0	81,209
			F_4	0	2,171	0	152,919
396,000--	80	--do--	F_1	50	4,030	50	82,832
			F_2	5	8,182	5	274,150
			F_3	0	16,861	0	931,556
			F_4	0	35,788	0	3,847,774
396,000--	90	Tenfold---	F_1	101	4,080	101	43,481
			F_2	11	8,494	11	157,060
			F_3	0	18,414	2	699,296
			F_4	0	43,374	0	4,984,656
396,000--	80	--do--	F_1	101	8,060	101	165,664
			F_2	39	33,206	28	1,067,514
			F_3	14	148,238	11	8,984,906
			F_4	11	835,210	6	87,580,048

Table 27.--Numbers in each generation in which conditional lethal traits cannot be expressed when native population of 2,000 insects (3 autosomal genes bbDDEE plus 1 sex-linked gene aa; female is heterogametic) was overflooded in parental, F_1, F_2, and F_3 generations by partially sterile insects (AABBddee, A-BBddee) with 3 conditional lethal traits

Number released	Sterility	Rate of increase	Generation	No offspring from matings between partially sterile insects: Males	Females	Total	Proportionate offspring from matings between partially sterile insects: Males	Females	Total
	Percent								
198,000--	90	Fivefold---	F_1	50	50	2,080	50	50	11,880
			F_2	3	3	2,166	3	3	23,910
			F_3	0	0	2,322	0	0	43,050
			F_4	0	0	2,772	0	0	81,934
198,000--	80	--do--	F_1	50	50	4,060	50	50	43,264
			F_2	5	11	8,364	5	8	142,300
			F_3	0	2	18,214	0	2	486,156
			F_4	0	0	45,974	0	0	2,020,142
198,000--	90	Tenfold---	F_1	100	100	4,160	100	100	23,762
			F_2	15	28	9,004	15	25	85,572
			F_3	2	7	21,610	4	9	391,542
			F_4	0	2	65,288	2	9	2,870,044
198,000--	80	--do--	F_1	100	100	8,120	100	100	86,528
			F_2	46	82	34,400	32	59	559,110
			F_3	26	69	171,406	16	52	4,734,478
			F_4	38	138	1,206,836	11	61	46,207,232
396,000--	90	Fivefold---	F_1	25	25	2,040	25	25	21,740
			F_2	0	2	2,082	0	0	45,036
			F_3	0	0	2,188	0	0	81,210
			F_4	0	0	2,582	0	0	152,918
396,000--	80	--do--	F_1	25	25	4,030	25	25	82,832
			F_2	3	5	8,182	2	3	274,150
			F_3	0	0	17,344	0	0	931,552
			F_4	0	0	42,124	0	0	3,847,732
396,000--	90	Tenfold---	F_1	50	50	4,080	50	50	43,482
			F_2	6	11	8,494	5	10	157,060
			F_3	0	2	18,898	0	2	699,292
			F_4	0	0	50,022	0	2	4,984,602
196,000--	80	--do--	F_1	50	50	8,060	50	50	165,664
			F_2	18	36	33,206	13	26	1,067,512
			F_3	7	20	151,844	5	20	8,984,826
			F_4	6	26	921,802	2	19	87,578,912

Table 28.--Complete suppression of native population (2,000 insects, 1:1 sex ratio) by overflooding parental, F_1, F_2, and F_3 generations with partially sterile release strain bearing conditional lethal traits. Complete suppression is assumed when number of insects with genotypes for survival is reduced to 30 or less

Inheritance of conditional lethal traits in release strain			No offspring from partially sterile insect matings when lethal traits expressed during--			Proportionate offspring from partially sterile insect matings when lethal traits expressed during--		
Trait 1	Trait 2	Trait 3	F_2	F_3	F_4	F_2	F_3	F_4
1 dom.auto.	--	--	1,5	1,5	1,5	1,5	1,5	1,5
2 auto.(4)	--	--	1,2,5,6,7	1,2,5,6,7	1,2,3,5,6,7	1,2,5,6,7	1,2,5,6,7	1,2,5,6
2 auto.(3,4)	--	--	5	1,5	1,5	5	1,5	1,5
3 auto.(5,6)	--	--	1,5,6	1,2,5,6,7	1,2,3,5,6,7	1,5,6	1,2,5,6,7	1,2,5,6
3 auto.(4-6)	--	--	5	1,5	1,5,6	5	1,5	1,5
4 auto.(7,8)	--	--	1,2,5,6,7	1,2,3,5,6, 7,8	1,2,3,5,6, 7,8	1,2,5,6,7	1,2,3,5,6, 7,8	1,2,3,5,6,7,8
4 auto.(6-8)	--	--	1,5	1,2,5,6,7	1,2,3,5,6,7	1,5,6	1,2,5,6,7	1,2,5,6,7
3 auto.+ 1 s.l.(6-9)	--	--	--	1,5	1,5	--	5	1,5
1 dom.auto.	1 dom.auto.	--	1,2,5,6,7	1,2,5,6,7	1,2,3,5,6,7	1,2,5,6,7	1,2,5,6	1,2,5,6
1 dom.auto.	2 auto.(3,4)	--	1,5,6	1,2,5,6,7	1,2,3,5,6,7	1,5,6	1,2,5,6,7	1,2,5,6,7
1 dom.auto.	3 auto.(4-6)	--	1,5,6	1,2,5,6,7	1,2,3,5,6,7	1,5,6	1,2,5,6,7	1,2,5,6,7
2 auto.(3,4)	2 auto.(3,4)	--	1,5,6	1,2,5,6,7	1,2,3,5,6,7	1,5,6	1,2,5,6,7	1,2,5,6,7
1 dom. s.l.	3 auto.(4-6)	--	1,5,6	1,2,5,6,7	1,2,5,6,7	1,5,6	1,2,5,6, 7(?)[1]	1,2,5,6,7(?)
1 dom.auto.	1 dom.auto.	1 dom.auto.	1,2,3,5,6, 7,8	1,2,3,5,6, 7,8	1,2,3,5,6,7, 8	1,2,3,5,6, 7,8	1,2,3,5,6, 7,8	1,2,3,5,6,7,8
1 dom.auto.	1 dom.auto.	2 auto.(3,4)	1,2,5,6,7	1,2,3,5,6, 7,8	1,2,3,5,6,7, 8	1,2,3,5,6, 7,8	1,2,3,5,6, 7,8	1,2,3,4,5,6,7, 8
1 dom.s.l.	1 dom.auto.	2 auto.(3,4)	1,2,5,6,7	1,2,3,5,6, 7,8	1,2,3,5,6,7, 8(?)	1,2,5,6,7	1,2,3,5,6, 7,8	1,2,3,5,6,7,8

[1] (?) = case with slightly more than 30 survivors or with pronounced sex ratio distortion or with both.

Table 29.--Relative frequencies of genotypes when native population (aa) is overflooded once in parental generation by X release insects (AA) for every native insect

Genotype	F_1	F_2	F_3	F_4
		X = 1		
aa---	0.2500000	0.2500000	0.2500000	0.2500000
Aa---	.5000000	.5000000	.5000000	.5000000
AA---	.2500000	.2500000	.2500000	.2500000
		X = 2		
aa---	.1111111	.1111111	.1111111	.1111111
Aa---	.4444444	.4444444	.4444444	.4444444
AA---	.4444444	.4444444	.4444444	.4444444
		X = 3		
aa---	.0625000	.0625000	.0625000	.0625000
Aa---	.3750000	.3750000	.3750000	.3750000
AA---	.5625000	.5625000	.5625000	.5625000
		X = 4		
aa---	.0400000	.0400000	.0400000	.0400000
Aa---	.3200000	.3200000	.3200000	.3200000
AA---	.6400000	.6400000	.6400000	.6400000
		X = 5		
aa---	.0277777	.0277777	.0277777	.0277777
Aa---	.2777777	.2777777	.2777777	.2777777
AA---	.6944444	.6944444	.6944444	.6944444
		X = 10		
aa---	.0082645	.0082645	.0082645	.0082645
Aa---	.1652892	.1652892	.1652892	.1652892
AA---	.8264462	.8264462	.8264462	.8264462
		X = 50		
aa---	.0003845	.0003845	.0003845	.0003845
Aa---	.0384467	.0384467	.0384467	.0384467
AA---	.9611687	.9611687	.9611687	.9611687
		X = 100		
aa---	.0000980	.0000980	.0000980	.0000980
Aa---	.0196059	.0196059	.0196059	.0196059
AA---	.9802959	.9802959	.9802959	.9802959
		X = 200		
aa---	.0000248	.0000248	.0000248	.0000248
Aa---	.0099007	.0099007	.0099007	.0099007
AA---	.9900745	.9900745	.9900745	.9900745
		X = 1,000		
aa---	.0000010	.0000010	.0000010	.0000010
Aa---	.0019960	.0019960	.0019960	.0019960
AA---	.9980029	.9980029	.9980029	.9980029

Table 30.--Relative frequencies of genotypes when native population (AABB) is overflooded once in parental generation by X release insects (aabb) for every native insect

Generation	AABB	AaBB	AABb	AaBb	aaBB	AAbb	aaBb	Aabb	aabb
				X = 1					
F_1----	0.2500000	-----	-----	0.5000000	-----	-----	-----	-----	0.2500000
F_2----	.1406250	0.0937500	0.0937500	.3125000	0.0156250	0.0156250	0.0937500	0.0937500	.1406250
F_3----	.0965625	.1171875	.1171875	.2656250	.0351563	.0351563	.1171875	.1171875	.0976563
F_4----	.0791016	.1230469	.1230469	.2539063	.0478516	.0478516	.1230469	.1230469	.0791016
				X = 2					
F_1----	.1111111	-----	-----	.4444444	-----	-----	-----	-----	.4444444
F_2----	.0493827	.0493827	.0493827	.2716049	.0123457	.0123457	.1234568	.1234568	.3086420
F_3----	.0277778	.0555556	.0555556	.2222222	.0277778	.0277778	.1666667	.1666667	.2500000
F_4----	.0192901	.0540123	.0540123	.2067901	.0378086	.0378086	.1836420	.1836420	.2229938
				X = 3					
F_1----	.0625000	-----	-----	.3750000	-----	-----	-----	-----	.5625000
F_2----	.0244141	.0292969	.0292969	.2226563	.0087891	.0087891	.1230469	.1230469	.4306641
F_3----	.0119629	.0307617	.0307617	.1728516	.0197754	.0197754	.1713867	.1713867	.3713379
F_4----	.0073853	.0281982	.0281982	.1545410	.0269165	.0269165	.1922607	.1922607	.3433228
				X = 4					
F_1----	.0400000	-----	-----	.3200000	-----	-----	-----	-----	.6400000
F_2----	.0144000	.0192000	.0192000	.1856000	.0064000	.0064000	.1152000	.1152000	.5184000
F_3----	.0064000	.0192000	.0192000	.1376000	.0144000	.0144000	.1632000	.1632000	.4624000
F_4----	.0036000	.0168000	.0168000	.1184000	.0196000	.0196000	.1848000	.1848000	.4356000
				X = 5					
F_1----	.0277778	-----	-----	.2777778	-----	-----	-----	-----	.6944444
F_2----	.0094522	.0135031	.0135031	.1581790	.0048225	.0048225	.1060957	.1060957	.5835262
F_3----	.0039063	.0130208	.0130208	.1128472	.0108507	.0108507	.1519097	.1519097	.5316840
F_4----	.0020375	.0109713	.0109713	.0937982	.0147690	.0147690	.1730083	.1730083	.5066671
				X = 10					
F_1----	.0082645	-----	-----	.1652893	-----	-----	-----	-----	.8264463
F_2----	.0024588	.0040908	.0040908	.0894748	.0017075	.0017075	.0717164	.0717164	.7530223
F_3----	.0008367	.0035858	.0035858	.0566901	.0038420	.0038420	.1050133	.1050133	.7175910
F_4----	.0003458	.0026894	.0026894	.0415784	.0052293	.0055932	.1210214	.1210214	.7001955
				X = 50					
F_1----	.0003845	-----	-----	.0384468	-----	-----	-----	-----	.9611688
F_2----	.0000999	.0001922	.0001922	.0195929	.0000924	.0000924	.0186617	.0186617	.9424147
F_3----	.0000269	.0001497	.0001497	.0104431	.0002079	.0002079	.0278539	.0278539	.9331070
F_4----	.0000078	.0000938	.0000938	.0059376	.0002829	.0002829	.0324154	.0324154	.9284704
				X = 100					
F_1----	.0000980	-----	-----	.0196059	-----	-----	-----	-----	.9802960
F_2----	.0000250	.0000490	.0000490	.0098991	.0000240	.0000240	.0096579	.0096579	.9706142
F_3----	.0000065	.0000375	.0000375	.0051177	.0000541	.0000541	.0144507	.0144507	.9657913
F_4----	.0000018	.0000227	.0000227	.0027450	.0000736	.0000736	.0168382	.0168382	.9633844
				X = 200					
F_1----	.0000248	-----	-----	.0099007	-----	-----	-----	-----	.9900745
F_2----	.0000062	.0000124	.0000124	.0049749	.0000061	.0000061	.0049135	.0049135	.9851549
F_3----	.0000016	.0000094	.0000094	.0025303	.0000138	.0000138	.0073610	.0073610	.9826997
F_4----	.0000004	.0000056	.0000056	.0013126	.0000188	.0000188	.0085825	.0085825	.9814732
				X = 1,000					
F_1----	.0000010	-----	-----	.0019960	-----	-----	-----	-----	.9980030
F_2----	.0000002	.0000005	.0000005	.0009990	.0000002	.0000002	.0009965	.0009965	.9970062
F_3----	.0000001	.0000004	.0000004	.0005012	.0000006	.0000006	.0014944	.0014944	.9965080
F_4----	.0000000	.0000002	.0000002	.0002526	.0000008	.0000008	.0017432	.0017432	.9962590

Table 31.--Relative frequencies of genotypes when native population (AABBDD) is overflooded once in parental generation by x times (number) unlabeled for every native insect

Genotype	$X = 1$				$X = 2$				$X = 3$				$X = 4$			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
AABBDD---	0.2500000	0.0976563	0.0478516	0.0295410	0.1111111	0.0277778	0.0096451	0.0041522	0.0625000	.0119629	.0032082	.0012019	.0400000	.0064000	.0014400	0.0004672
AABBDd---	-----	.0390625	.0410156	.0375977	-----	.0185185	.0135030	.0096209	-----	.0102539	.0059738	.0035548	-----	.0064000	.0031920	.0016555
AABbDD---	-----	.0390625	.0410156	.0375977	-----	.0185185	.0135030	.0096209	-----	.0102539	.0059738	.0035548	-----	.0064000	.0031920	.0016555
AaBBDD---	-----	.0390625	.0410156	.0375977	-----	.0185185	.0135030	.0096209	-----	.0102539	.0059738	.0035548	-----	.0064000	.0031920	.0016555
AABBdd---	-----	.0039063	.0087891	.0119629	-----	.0030864	.0048225	.0053168	-----	.0021973	.0027809	.0026286	-----	.0016000	.0017640	.0014822
AAbbDD---	-----	.0039063	.0087891	.0119629	-----	.0030864	.0048225	.0053168	-----	.0021973	.0027809	.0026286	-----	.0016000	.0017640	.0014822
aaBBDD---	-----	.0039063	.0087891	.0119629	-----	.0030864	.0048225	.0053168	-----	.0021973	.0027809	.0026286	-----	.0016000	.0017640	.0014822
AABbDd---	-----	.0468750	.0585938	.0615234	-----	.0246914	.0285492	.0266682	-----	.0146484	.0155182	.0130777	-----	.0096000	.0094559	.0073289
AaBBDd---	-----	.0468750	.0585938	.0615234	-----	.0246914	.0285492	.0266682	-----	.0146484	.0155182	.0130777	-----	.0096000	.0094559	.0073289
AaBbDD---	-----	.0468750	.0585938	.0615234	-----	.0246914	.0285492	.0266682	-----	.0146484	.0155182	.0130777	-----	.0096000	.0094559	.0073289
AABbdd---	-----	.0078125	.0175781	.0239258	-----	.0061728	.0135030	.0177227	-----	.0043945	.0092697	.0115657	-----	.0032000	.0065520	.0078155
AAbbDd---	-----	.0078125	.0175781	.0239258	-----	.0061728	.0135030	.0177227	-----	.0043945	.0092697	.0115657	-----	.0032000	.0065520	.0078155
AaBBdd---	-----	.0078125	.0175781	.0239258	-----	.0061728	.0135030	.0177227	-----	.0043945	.0092697	.0115657	-----	.0032000	.0065520	.0078155
AabbDD---	-----	.0078125	.0175781	.0239258	-----	.0061728	.0135030	.0177227	-----	.0043945	.0092697	.0115657	-----	.0032000	.0065520	.0078155
aaBBDd---	-----	.0078125	.0175781	.0239258	-----	.0061728	.0135030	.0177227	-----	.0043945	.0092697	.0115657	-----	.0032000	.0065520	.0078155
aaBbDD---	-----	.0078125	.0175781	.0239258	-----	.0061728	.0135030	.0177227	-----	.0043945	.0092697	.0115657	-----	.0032000	.0065520	.0078155
AaBbDd---	.5000000	.2187500	.1484375	.1308594	.4444444	.1851851	.1188252	.0994397	.3750000	.1464844	.0868835	.0675024	.3200000	.1184000	.0654073	.0474615
AAbbdd---	-----	.0039063	.0087891	.0119629	-----	.0030864	.0094521	.0147690	-----	.0021973	.0077248	.0127222	-----	.0016000	.0060840	.0103022
aaBBdd---	-----	.0039063	.0087891	.0119629	-----	.0030864	.0094521	.0147690	-----	.0021973	.0077248	.0127222	-----	.0016000	.0060840	.0103022
aabbDD---	-----	.0039063	.0087891	.0119629	-----	.0030864	.0094521	.0147690	-----	.0021973	.0077248	.0127222	-----	.0016000	.0060840	.0103022
AaBbdd---	-----	.0468750	.0585938	.0615234	-----	.0617284	.0748454	.0806807	-----	.0615234	.0704498	.0739600	-----	.0576000	.0627358	.0636086
AabbDd---	-----	.0468750	.0585938	.0615234	-----	.0617284	.0748454	.0806807	-----	.0615234	.0704498	.0739600	-----	.0576000	.0627358	.0636086
aaBbDd---	-----	.0468750	.0585938	.0615234	-----	.0617284	.0748454	.0806807	-----	.0615234	.0704498	.0739600	-----	.0576000	.0627358	.0636086
Aabbdd---	-----	.0390625	.0410156	.0375977	-----	.0555555	.0783178	.0852383	-----	.0571289	.0916672	.1067346	-----	.0544000	.0939119	.1133754
aaBbdd---	-----	.0390625	.0410156	.0375977	-----	.0555555	.0783178	.0852383	-----	.0571289	.0916672	.1067346	-----	.0544000	.0939119	.1133754
aabbDd---	-----	.0390625	.0410156	.0375977	-----	.0555555	.0783178	.0852383	-----	.0571289	.0916672	.1067346	-----	.0544000	.0939119	.1133754
aabbdd---	.2500000	.0976563	.0478516	.0295410	.4444444	.2500000	.1622298	.1229873	.5625000	.3713379	.2719460	.2238656	.6400000	.4623994	.3624041	.3119229

Table 31.--Relative frequencies of genotypes when native population (AABBDD) is overflooded once in parental generation by X release insects (aabbdd) for every native insect--Continued

Genotype	X = 5				X = 10				X = 50				X = 100			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
AABBDD---	0.0280000	0.0039062	0.0007716	0.0002178	0.0082645	0.0008367	0.0001126	0.0000214	0.0003845	0.0000269	0.0000021	0.0000002	0.0000980	0.0000065	0.0000005	0.0000000
AABBDd---	-----	.0043403	.0019290	.0008967	-----	.0011953	.0003887	.0001292	-----	.0000499	.0000108	.0000021	-----	.0000125	.0000025	.0000004
AABbDD---	-----	.0043403	.0019290	.0008967	-----	.0011953	.0003887	.0001292	-----	.0000499	.0000108	.0000021	-----	.0000125	.0000025	.0000004
AaBBDD---	-----	.0043403	.0019290	.0008967	-----	.0011953	.0003887	.0001292	-----	.0000499	.0000108	.0000021	-----	.0000125	.0000025	.0000004
AABBdd---	-----	.0012056	.0012056	.0009231	-----	.0004269	.0003354	.0001951	-----	.0000231	.0000140	.0000055	-----	.0000060	.0000035	.0000013
AAbbDD---	-----	.0012056	.0012056	.0009231	-----	.0004269	.0003354	.0001951	-----	.0000231	.0000140	.0000055	-----	.0000060	.0000035	.0000013
aaBBDD---	-----	.0012056	.0012056	.0009131	-----	.0004269	.0003354	.0001951	-----	.0000231	.0000140	.0000055	-----	.0000060	.0000035	.0000013
AABbDd---	-----	.0067515	.0062693	.0045361	-----	.0020490	.0015976	.0009300	-----	.0000961	.0000589	.0000237	-----	.0000245	.0000144	.0000054
AaBBDd---	-----	.0067515	.0062693	.0045361	-----	.0020490	.0015976	.0009300	-----	.0000961	.0000589	.0000237	-----	.0000245	.0000144	.0000054
AaBbDD---	-----	.0067515	.0062693	.0045361	-----	.0020490	.0015976	.0009300	-----	.0000961	.0000589	.0000237	-----	.0000245	.0000144	.0000054
AABbdd---	-----	.0024113	.0048225	.0055383	-----	.0008538	.0015995	.0016301	-----	.0000462	.0000799	.0000680	-----	.0000120	.0000205	.0000169
AAbbDd---	-----	.0024113	.0048225	.0055383	-----	.0008538	.0015995	.0016301	-----	.0000462	.0000799	.0000680	-----	.0000120	.0000205	.0000169
AaBBdd---	-----	.0024113	.0048225	.0055383	-----	.0008538	.0015995	.0016301	-----	.0000462	.0000799	.0000680	-----	.0000120	.0000205	.0000169
AabbDD---	-----	.0024113	.0048225	.0055383	-----	.0008538	.0015995	.0016301	-----	.0000462	.0000799	.0000680	-----	.0000120	.0000205	.0000169
aaBBDd---	-----	.0024113	.0048225	.0055383	-----	.0008538	.0015995	.0016301	-----	.0000462	.0000799	.0000680	-----	.0000120	.0000205	.0000169
aaBbDD---	-----	.0024113	.0048225	.0055383	-----	.0008538	.0015995	.0016301	-----	.0000462	.0000799	.0000680	-----	.0000120	.0000205	.0000169
AaBbDd---	.2800000	.0983795	.0511181	.0349327	.1652289	.0515675	.0218510	.0120912	.0384468	.0101660	.0029998	.0010344	.0196059	.0050456	.0013796	.0004160
AAbbdd---	-----	.0012056	.0048225	.0083075	-----	.0004269	.0019071	.0034040	-----	.0000231	.0001139	.0002094	-----	.0000060	.0000300	.0000554
aaBBdd---	-----	.0012056	.0048225	.0083075	-----	.0004269	.0019071	.0034040	-----	.0000231	.0001139	.0002094	-----	.0000060	.0000300	.0000554
aabbDD---	-----	.0012056	.0048225	.0083075	-----	.0004269	.0019071	.0034040	-----	.0000231	.0001139	.0002094	-----	.0000060	.0000300	.0000554
AaBbdd---	-----	.0530478	.0554588	.0543285	-----	.0358582	.0332412	.0285570	-----	.0093308	.0073844	.0048794	-----	.0048289	.0037237	.0023237
AabbDd---	-----	.0530478	.0554588	.0543285	-----	.0358582	.0332412	.0285570	-----	.0093308	.0073844	.0048794	-----	.0048289	.0037237	.0023237
aaBbDd---	-----	.0538478	.0554588	.0543285	-----	.0358582	.0332412	.0285570	-----	.0093308	.0073844	.0048794	-----	.0048289	.0037237	.0023237
Aabbdd---	-----	.0506365	.0916278	.1131409	-----	.0350044	0701723	0908340	-----	.0092846	.0203895	.0274679	-----	.0048169	.0107065	.0144976
aaBbdd---	-----	.0506365	.0916278	.1131409	-----	.0350044	.0701723	.0908340	-----	.0092846	.0203895	.0274679	-----	.0048169	.0107065	.0144976
aabbDd---	-----	.0506365	.0916278	.1131409	-----	.0350044	.0701723	.0908340	-----	.0092846	.0203895	.0274679	-----	.0048169	.0107065	.0144976
aabbdd---	.6944444	.5316837	.4352337	.3852191	.8264462	.7175908	.6455109	.6059582	.9611687	.9331066	.9126031	.9007925	.9802959	.9657912	.9550533	.9488312

Table 31.--Relative frequencies of genotypes when native population (AABBDD) is overflooded once in parental generation by X release insects (aabbdd) for every native insect--Continued

Genotype	X = 200				X = 1,000			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
AABBDD---	0.0000248	0.0000016	0.0000001	0.0000001	0.0000010	0.0000001	0.0000000	0.0000000
AABBDd---	-----	.0000031	.0000006	.0000010	-----	.0000001	.0000000	.0000000
AABbDD---	-----	.0000031	.0000006	.0000010	-----	.0000001	.0000000	.0000000
AaBBDD---	-----	.0000031	.0000006	.0000010	-----	.0000001	.0000000	.0000000
AABBdd---	-----	.0000015	.0000009	.0000003	-----	.0000001	.0000000	.0000000
AAbbDD---	-----	.0000015	.0000009	.0000003	-----	.0000001	.0000000	.0000000
aaBBDD---	-----	.0000015	.0000009	.0000003	-----	.0000001	.0000000	.0000000
AABbDd---	-----	.0000062	.0000036	.0000013	-----	.0000002	.0000001	.0000000
AaBBDd---	-----	.0000062	.0000036	.0000013	-----	.0000002	.0000001	.0000000
AaBbDD---	-----	.0000062	.0000036	.0000013	-----	.0000002	.0000001	.0000000
AABbdd---	-----	.0000031	.0000052	.0000042	-----	.0000001	.0000002	.0000002
AAbbDd---	-----	.0000031	.0000052	.0000042	-----	.0000001	.0000002	.0000002
AaBBdd---	-----	.0000031	.0000052	.0000042	-----	.0000001	.0000002	.0000002
AabbDD---	-----	.0000031	.0000052	.0000042	-----	.0000001	.0000002	.0000002
aaBBDd---	-----	.0000031	.0000052	.0000042	-----	.0000001	.0000002	.0000002
aaBbDD---	-----	.0000031	.0000052	.0000042	-----	.0000001	.0000002	.0000002
AaBbDd---	.0099007	.0025119	.0006580	.0001822	.0019960	.0005000	.0001263	.0000323
AAbbdd---	-----	.0000015	.0000077	.0000142	-----	.0000001	.0000003	.0000006
aaBBdd---	-----	.0000015	.0000077	.0000142	-----	.0000001	.0000003	.0000006
aabbDD---	-----	.0000015	.0000077	.0000142	-----	.0000001	.0000003	.0000006
AaBbdd---	-----	.0024567	.0018688	.0011291	-----	.0004983	.0003748	.0002202
AabbDd---	-----	.0024567	.0018688	.0011291	-----	.0004983	.0003748	.0002202
aaBbDd---	-----	.0024567	.0018688	.0011291	-----	.0004983	.0003748	.0002202
Aabbdd---	-----	.0024537	.0058471	.0074492	-----	.0004981	.0011194	.0015229
aaBbdd---	-----	.0024537	.0058471	.0074492	-----	.0004981	.0011194	.0015229
aabbDd---	-----	.0024537	.0058471	.0074492	-----	.0004981	.0011194	.0015229
aabbdd---	.9900745	.9826995	.9772047	.9740093	.9980030	.9965084	.9953883	.9947354

Table 32.--Relative frequencies of genotypes when native population (AABBDDEE) is overflooded once in parental generation by X release insects (aabbddee) for every native insect

Genotype	X = 1				X = 2				X = 3			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
AABBDDEE	.2500000	.0791016	.0275612	.0125576	.1111111	.0192901	.0040523	.0011956	.0625000	.0073853	.0011269	.0002485
AABBDDEe	-----	.0175781	.0175095	.0134057	-----	.0077160	.0042733	.0021711	-----	.0040283	.0015490	.0005960
AABBDdEE	-----	.0175781	.0175095	.0134057	-----	.0077160	.0042733	.0021711	-----	.0040283	.0015490	.0005960
AABbDDEE	-----	.0175781	.0175095	.0134057	-----	.0077160	.0042733	.0021711	-----	.0040283	.0015490	.0005960
AaBBDDEE	-----	.0175781	.0175095	.0134057	-----	.0077160	.0042733	.0021711	-----	.0040283	.0015490	.0005960
AABBDDee	-----	.0009766	.0027809	.0035778	-----	.0007716	.0011266	.0009856	-----	.0005493	.0005323	.0003574
AABBddEE	-----	.0009766	.0027809	.0035778	-----	.0007716	.0011266	.0009856	-----	.00005493	.0005323	.0003574
AAbbDDEE	-----	.0009766	.0027809	.0035778	-----	.0007716	.0011266	.0009856	-----	.00005493	.0005323	.0003574
aaBBDDEE	-----	.0009766	.0027809	.0035778	-----	.0007716	.0011266	.0009856	-----	.0005493	.0005323	.0003574
AABBDdEe	-----	.0195313	.0191803	.0182631	-----	.0092593	.0068212	.0048427	-----	.0051270	.0030561	.0017351
AABbDDEe	-----	.0195313	.0191803	.0182631	-----	.0092593	.0068212	.0048427	-----	.0051270	.0030561	.0017351
AABbDdEE	-----	.0195313	.0191803	.0182631	-----	.0092593	.0068212	.0048427	-----	.0051270	.0030561	.0017351
AaBBDDEe	-----	.0195313	.0191803	.0182631	-----	.0092593	.0068212	.0048427	-----	.0051270	.0030561	.0017351
AaBBDdEE	-----	.0195313	.0191803	.0182631	-----	.0092593	.0068212	.0048427	-----	.0051270	.0030561	.0017351
AaBbDDEE	-----	.0195313	.0191803	.0182631	-----	.0092593	.0068212	.0048427	-----	.0051270	.0030561	.0017351
AABBDdee	-----	.0019531	.0043259	.0059289	-----	.0015432	.0024086	.0026071	-----	.0010986	.0013687	.0012237
AABBddEe	-----	.0019531	.0043259	.0059289	-----	.0015432	.0024086	.0026071	-----	.0010986	.0013687	.0012237
AABbDDee	-----	.0019531	.0043259	.0059289	-----	.0015432	.0024086	.0026071	-----	.0010986	.0013687	.0012237
AABbddEE	-----	.0019531	.0043259	.0059289	-----	.0015432	.0024086	.0026071	-----	.0010986	.0013687	.0012237
AAbbDDEe	-----	.0019531	.0043259	.0059289	-----	.0015432	.0024086	.0026071	-----	.0010986	.0013687	.0012237
AAbbDdEE	-----	.0019531	.0043259	.0059289	-----	.0015432	.0024086	.0026071	-----	.0010986	.0013687	.0012237
AaBBDDee	-----	.0019531	.0043259	.0059289	-----	.0015432	.0024086	.0026071	-----	.0010986	.0013687	.0012237
AaBBddEE	-----	.0019531	.0043259	.0059289	-----	.0015432	.0024086	.0026071	-----	.0010986	.0013687	.0012237
AabbDDEE	-----	.0019531	.0043259	.0059289	-----	.0015432	.0024086	.0026071	-----	.0010986	.0013687	.0012237
aaBBDDEe	-----	.0019531	.0043259	.0059289	-----	.0015432	.0024086	.0026071	-----	.0010986	.0013687	.0012237
aaBBDdEE	-----	.0019531	.0043259	.0059289	-----	.0015432	.0024086	.0026071	-----	.0010986	.0013687	.0012237
aaBbDDEE	-----	.0019531	.0043259	.0059289	-----	.0015432	.0024086	.0026071	-----	.0010986	.0013687	.0012237
AABbDdEe	-----	.0234375	.0304871	.0311923	-----	.0123457	.0150356	.0133542	-----	.0073242	.0080155	.0062067
AaBBDdEe	-----	.0234375	.0304871	.0311923	-----	.0123457	.0150356	.0133542	-----	.0073242	.0080155	.0062067
AaBbDDEe	-----	.0234375	.0304871	.0311923	-----	.0123457	.0150356	.0133542	-----	.0073242	.0080155	.0062067
AaBbDdEE	-----	.0234375	.0304871	.0311923	-----	.0123457	.0150356	.0133542	-----	.0073242	.0080155	.0062067
AABBddee	-----	.0009766	.0016823	.0024562	-----	.0007716	.0012873	.0017241	-----	.0005493	.0008799	.0010474
AAbbDDee	-----	.0009766	.0016823	.0024562	-----	.0007716	.0012873	.0017241	-----	.0005493	.0008799	.0010474
AAbbddEE	-----	.0009766	.0016823	.0024562	-----	.0007716	.0012873	.0017241	-----	.0005493	.0008799	.0010474
aaBBDDee	-----	.0009766	.0016823	.0024562	-----	.0007716	.0012873	.0017241	-----	.0005493	.0008799	.0010474
aaBBddEE	-----	.0009766	.0016823	.0024562	-----	.0007716	.0012873	.0017241	-----	.0005493	.0008799	.0010474
aabbDDEE	-----	.0009766	.0016823	.0024562	-----	.0007716	.0012873	.0017241	-----	.0005493	.0008799	.0010474
AABbDdee	-----	.0039063	.0089264	.0120680	-----	.0030864	.0066926	.0084717	-----	.0021973	.0044466	.0051360
AABbddEe	-----	.0039063	.0089264	.0120680	-----	.0030864	.0066926	.0084717	-----	.0021973	.0044466	.0051360
AAbbDdEe	-----	.0039063	.0089264	.0120680	-----	.0030864	.0066926	.0084717	-----	.0021973	.0044466	.0051360
AaBBDdee	-----	.0039063	.0089264	.0120680	-----	.0030864	.0066926	.0084717	-----	.0021973	.0044466	.0051360
AaBBddEe	-----	.0039063	.0089264	.0120680	-----	.0030864	.0066926	.0084717	-----	.0021973	.0044466	.0051360
AaBbDDee	-----	.0039063	.0089264	.0120680	-----	.0030864	.0066926	.0084717	-----	.0021973	.0044466	.0051360
AaBbddEE	-----	.0039063	.0089264	.0120680	-----	.0030864	.0066926	.0084717	-----	.0021973	.0044466	.0051360
AabbDDEe	-----	.0039063	.0089264	.0120680	-----	.0030864	.0066926	.0084717	-----	.0021973	.0044466	.0051360
AabbDdEE	-----	.0039063	.0089264	.0120680	-----	.0030864	.0066926	.0084717	-----	.0021973	.0044466	.0051360
aaBBDdEe	-----	.0039063	.0089264	.0120680	-----	.0030864	.0066926	.0084717	-----	.0021973	.0044466	.0051360
aaBbDDEe	-----	.0039063	.0089264	.0120680	-----	.0030864	.0066926	.0084717	-----	.0021973	.0044466	.0051360
aaBbDdEE	-----	.0039063	.0089264	.0120680	-----	.0030864	.0066926	.0084717	-----	.0021973	.0044466	.0051360
AABbddee	-----	.0019531	.0043259	.0059289	-----	.0015432	.0044019	.0066440	-----	.0010986	.0034544	.0052060
AAbbDdee	-----	.0019531	.0043259	.0059289	-----	.0015432	.0044019	.0066440	-----	.0010986	.0034544	.0052060
AAbbddEe	-----	.0019531	.0043259	.0059289	-----	.0015432	.0044019	.0066440	-----	.0010986	.0034544	.0052060
AaBBddee	-----	.0019531	.0043259	.0059289	-----	.0015432	.0044019	.0066440	-----	.0010986	.0034544	.0052060
AabbDDee	-----	.0019531	.0043259	.0059289	-----	.0015432	.0044019	.0066440	-----	.0010986	.0034544	.0052060
AabbddEE	-----	.0019531	.0043259	.0059289	-----	.0015432	.0044019	.0066440	-----	.0010986	.0034544	.0052060
aaBBDdee	-----	.0019531	.0043259	.0059289	-----	.0015432	.0044019	.0066440	-----	.0010986	.0034544	.0052060
aaBBddEe	-----	.0019531	.0043259	.0059289	-----	.0015432	.0044019	.0066440	-----	.0010986	.0034544	.0052060
aaBbDDee	-----	.0019531	.0043259	.0059289	-----	.0015432	.0044019	.0066440	-----	.0010986	.0034544	.0052060
aaBbddEE	-----	.0019531	.0043259	.0059289	-----	.0015432	.0044019	.0066440	-----	.0010986	.0034544	.0052060
aabbDDEe	-----	.0019531	.0043259	.0059289	-----	.0015432	.0044019	.0066440	-----	.0010986	.0034544	.0052060
aabbDdEE	-----	.0019531	.0043259	.0059289	-----	.0015432	.0044019	.0066440	-----	.0010986	.0034544	.0052060
AaBbDdEe	.5000000	.1718750	.0874634	.0684748	.4444443	.1419753	.0676655	.0491580	.3750000	.1083984	.0471289	.0308293
AAbbddee	-----	.0009766	.0027809	.0035778	-----	.0007716	.0037629	.0064009	-----	.0005493	.0033904	.0064688
AaBBddee	-----	.0009766	.0027809	.0035778	-----	.0007716	.0037629	.0064009	-----	.0005493	.0033904	.0064688
aabbDDee	-----	.0009766	.0027809	.0035778	-----	.0007716	.0037629	.0064009	-----	.0005493	.0033904	.0064688
aabbddEE	-----	.009766	.0027809	.0035778	-----	.0007716	.0037629	.0064009	-----	.0005493	.0033904	.0064688
AaBbDdee	-----	.0234375	.0304871	.0311923	-----	.0308642	.0361261	.0363928	-----	.0307617	.0317391	.0304671
AaBbddEe	-----	.0234375	.0304871	.0311923	-----	.0308642	.0361261	.0363928	-----	.0307617	.0317391	.0304671
AabbDdEe	-----	.0234375	.0304871	.0311923	-----	.0308642	.0361261	.0363928	-----	.0307617	.0317391	.0304671
aaBbDdEe	-----	.0234375	.0304871	.0311923	-----	.0308642	.0361261	.0363928	-----	.0307617	.0317391	.0304671
AaBbddee	-----	.0195313	.0191803	.0182631	-----	.0277778	.0320270	.0352809	-----	.0285645	.0342641	.0383573
AabbDdee	-----	.0195313	.0191803	.0182631	-----	.0277778	.0320270	.0352809	-----	.0285645	.0342641	.0383573
AabbddEe	-----	.0195313	.0191803	.0182631	-----	.0277778	.0320270	.0352809	-----	.0285645	.0342641	.0383573
aaBbDdee	-----	.0195313	.0191803	.0182631	-----	.0277778	.0320270	.0352809	-----	.0285645	.0342641	.0383573
aaBbddEe	-----	.0195313	.0191803	.0182631	-----	.0277778	.0320270	.0352809	-----	.0285645	.0342641	.0383573
aabbDdEe	-----	.0195313	.0191803	.0182631	-----	.0277778	.0320270	.0352809	-----	.0285645	.0342641	.0383573
Aabbddee	-----	.0175781	.0175095	.0134057	-----	.0252346	.0418890	.0433133	-----	.0274658	.0539486	.0631715
aaBbddee	-----	.0175781	.0175095	.0134057	-----	.0262346	.0418890	.0433133	-----	.0274658	.0539486	.0631715
aabbDdee	-----	.0175781	.0175095	.0134057	-----	.0262346	.0418890	.0433133	-----	.0274658	.0539486	.0631715
aabbddEe	-----	.0175781	.0175095	.0134057	-----	.0262346	.0418890	.0433133	-----	.0274658	.0539486	.0631715
aabbddee	.2500000	.0791016	.0275612	.0125576	.4444444	.2229938	.1165780	.0732723	.5625000	.3433228	.2146069	.1542254

Table 32.--Relative frequencies of genotypes when native population (AABBDDEE) is overflooded once in parental generation by X release insects (aabbddee) for every native insect--Continued

Genotype	X = 4				X = 5				X = 10			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
AABBDDEE	0.0400000	0.0036000	0.0004368	0.0000777	0.0277778	0.0020375	0.0002072	0.0000311	0.0082645	0.0003458	0.0000208	0.0000019
		.0024000	.0007148	.0002236	-----	.0015673	.0003853	.0001024	-----	.0003842	.0000552	.0000089
		.0024000	.0007148	.0002236	-----	.0015673	.0003853	.0001024	-----	.0003842	.0000552	.0000089
		.0024000	.0007148	.0002236	-----	.0015673	.0003853	.0001024	-----	.0003842	.0000552	.0000089
		.0024000	.0007148	.0002236	-----	.0015673	.0003853	.0001024	-----	.0003842	.0000552	.0000089
		.0004000	.0002924	.0001610	-----	.0003014	.0001791	.0000842	-----	.0001067	.0000366	.0000106
		.0004000	.0002924	.0001610	-----	.0003014	.0001791	.0000842	-----	.0001067	.0000366	.0000106
		.0004000	.0002924	.0001610	-----	.0003014	.0001791	.0000842	-----	.0001067	.0000366	.0000106
		.0004000	.0002924	.0001610	-----	.0003014	.0001791	.0000842	-----	.0001067	.0000366	.0000106
		.0032000	.0016256	.0007769	-----	.0021701	.0009726	.0004051	-----	.0005976	.0001851	.0000505
		.0032000	.0016256	.0007769	-----	.0021701	.0009726	.0004051	-----	.0005976	.0001851	.0000505
		.0032000	.0016256	.0007769	-----	.0021701	.0009726	.0004051	-----	.0005976	.0001851	.0000505
		.0032000	.0016256	.0007769	-----	.0021701	.0009726	.0004051	-----	.0005976	.0001851	.0000505
		.0032000	.0016256	.0007769	-----	.0021701	.0009726	.0004051	-----	.0005976	.0001851	.0000505
		.0008000	.0008000	.0006550	-----	.0006028	.0005712	.0003892	-----	.0002134	.0001484	.0000698
		.0008000	.0008516	.0006550	-----	.0006028	.0005712	.0003892	-----	.0002134	.0001484	.0000698
		.0008000	.0008516	.0006550	-----	.0006028	.0005712	.0003892	-----	.0002134	.0001484	.0000698
		.0008000	.0008516	.0006550	-----	.0006028	.0005712	.0003892	-----	.0002134	.0001484	.0000698
		.0008000	.0008516	.0006550	-----	.0006028	.0005712	.0003892	-----	.0002134	.0001484	.0000698
		.0008000	.0008516	.0006550	-----	.0006028	.0005712	.0003892	-----	.0002134	.0001484	.0000698
		.0008000	.0008516	.0006550	-----	.0006028	.0005712	.0003892	-----	.0002134	.0001484	.0000698
		.0008000	.0008516	.0006550	-----	.0006028	.0005712	.0003892	-----	.0002134	.0001484	.0000698
		.0008000	.0008516	.0006550	-----	.0006028	.0005712	.0003892	-----	.0002134	.0001484	.0000698
		.0048000	.0047743	.0032990	-----	.0033758	.0030984	.0019481	-----	.0010245	.0007317	.0003396
		.0048000	.0047743	.0032990	-----	.0033758	.0030984	.0019481	-----	.0010245	.0007317	.0003396
		.0048000	.0047743	.0032990	-----	.0033758	.0030984	.0019481	-----	.0010245	.0007317	.0003396
		.0048000	.0047743	.0032990	-----	.0033758	.0030984	.0019481	-----	.0010245	.0007317	.0003396
		.0004000	.0006200	.0006663	-----	.0003014	.0004554	.0004496	-----	.0001067	.0001504	.0001147
		.0004000	.0006200	.0006663	-----	.0003014	.0004554	.0004496	-----	.0001067	.0001504	.0001147
		.0004000	.0006200	.0006663	-----	.0003014	.0004554	.0004496	-----	.0001067	.0001504	.0001147
		.0004000	.0006200	.0006663	-----	.0003014	.0004554	.0004496	-----	.0001067	.0001504	.0001147
		.0004000	.0006200	.0006663	-----	.0003014	.0004554	.0004496	-----	.0001067	.0001504	.0001147
		.0004000	.0006200	.0006663	-----	.0003014	.0004554	.0004496	-----	.0001067	.0001504	.0001147
		.0016000	.0030560	.0032531	-----	.0012056	.0021983	.0021831	-----	.0004269	.0006808	.0005399
		.0016000	.0030560	.0032531	-----	.0012056	.0021983	.0021831	-----	.0004269	.0006808	.0005399
		.0016000	.0030560	.0032531	-----	.0012056	.0021983	.0021831	-----	.0004269	.0006808	.0005399
		.0016000	.0030560	.0032531	-----	.0012056	.0021983	.0021831	-----	.0004269	.0006808	.0005399
		.0016000	.0030560	.0032531	-----	.0012056	.0021983	.0021831	-----	.0004269	.0006808	.0005399
		.0016000	.0030560	.0032531	-----	.0012056	.0021983	.0021831	-----	.0004269	.0006808	.0005399
		.0016000	.0030560	.0032531	-----	.0012056	.0021983	.0021831	-----	.0004269	.0006808	.0005399
		.0016000	.0030560	.0032531	-----	.0012056	.0021983	.0021831	-----	.0004269	.0006808	.0005399
		.0016000	.0030560	.0032531	-----	.0012056	.0021983	.0021831	-----	.0004269	.0006808	.0005399
		.0016000	.0030560	.0032531	-----	.0012056	.0021983	.0021831	-----	.0004269	.0006808	.0005399
		.0008000	.0026444	.0039074	-----	.0006028	.0020531	.0029661	-----	.0002134	.0007703	.0010204
		.0008000	.0026444	.0039074	-----	.0006028	.0020531	.0029661	-----	.0002134	.0007703	.0010204
		.0008000	.0026444	.0039074	-----	.0006028	.0020531	.0029661	-----	.0002134	.0007703	.0010204
		.0008000	.0026444	.0039074	-----	.0006028	.0020531	.0029661	-----	.0002134	.0007703	.0010204
		.0008000	.0026444	.0039074	-----	.0006028	.0020531	.0029661	-----	.0002134	.0007703	.0010204
		.0008000	.0026444	.0039074	-----	.0006028	.0020531	.0029661	-----	.0002134	.0007703	.0010204
		.0008000	.0026444	.0039074	-----	.0006028	.0020531	.0029661	-----	.0002134	.0007703	.0010204
		.0008000	.0026444	.0039074	-----	.0006028	.0020531	.0029661	-----	.0002134	.0007703	.0010204
		.0008000	.0026444	.0039074	-----	.0006028	.0020531	.0029661	-----	.0002134	.0007703	.0010204
		.0008000	.0026444	.0039074	-----	.0006028	.0020531	.0029661	-----	.0002134	.0007703	.0010204
		.0008000	.0026444	.0039074	-----	.0006028	.0006028	.0029661	-----	.0002134	.0007703	.0010204
		.0008000	.0026444	.0039074	-----	.0006028	.0006028	.0029661	-----	.0002134	.0007703	.0010204
		.0848000	.0339282	.0201896	.2777777	.0684799	.0254912	.0139780	.1652892	.0326139	.0094654	.0039272
		.0004000	.0028196	.0057286	-----	.0003014	.0023141	.0048919	-----	.0001067	.0009865	.0022690
		.0004000	.0028196	.0057286	-----	.0003014	.0023141	.0048919	-----	.0001067	.0009865	.0022690
		.0004000	.0028196	.0057286	-----	.0003014	.0023141	.0048919	-----	.0001067	.0009865	.0022690
		.0004000	.0028196	.0057286	-----	.0003014	.0023141	.0048919	-----	.0001067	.0009865	.0022690
		.0288000	.0267005	.0239735	-----	.0265239	.0225292	.0190071	-----	.0179291	.0116540	.0078245
		.0288000	.0267055	.0239735	-----	.0265239	.0225292	.0190071	-----	.0179291	.0116540	.0078245
		.0288000	.0267055	.0239735	-----	.0265239	.0225292	.0190071	-----	.0179291	.0116540	.0078245
		.0288000	.0267055	.0239735	-----	.0265239	.0225292	.0190071	-----	.0179291	.0116540	.0078245
		.0272000	.0329744	.0363824	-----	.0253183	.0307316	.0331386	-----	.0175022	.0209065	.0201927
		.0272000	.0329744	.0363824	-----	.0253183	.0307316	.0331386	-----	.0175022	.0209065	.0201927
		.0272000	.0329744	.0363824	-----	.0253183	.0307316	.0331386	-----	.0175022	.0209065	.0201927
		.0272000	.0329744	.0363824	-----	.0253183	.0307316	.0331386	-----	.0175022	.0209065	.0201927
		.0272000	.0329744	.0363824	-----	.0253183	.0307316	.0331386	-----	.0175022	.0209065	.0201927
		.0272000	.0329744	.0363824	-----	.0253183	.0307316	.0331386	-----	.0175022	.0209065	.0201927
		.0264000	.0582932	.0730857	-----	.0247154	.0588434	.0770364	-----	.0172888	.0484957	.0696211
		.0264000	.0582932	.0730857	-----	.0247154	.0588434	.0770364	-----	.0172888	.0484957	.0696211
		.0264000	.0582932	.0730857	-----	.0247154	.0588434	.0770364	-----	.0172888	.0484957	.0696211
		.0264000	.0582932	.0730857	-----	.0247154	.0588434	.0770364	-----	.0172888	.0484957	.0696211
		.4355999	.3012911	.2331079	.6944443	.5066671	.3740759	.3032902	.8264463	.7001955	.5960293	.5340672

Table 32.--Relative frequencies of genotypes when native population (AABBDDEE) is overflooded once in parental generation by X release insects (aabbddee) for every native insect--Continued

Genotype	X = 20				X = 50				X = 100			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
AABBDDEE	0.0022676	0.0000630	0.0000024	0.0000001	0.0003845	0.0000078	0.0000002	0.0000000	0.0000980	0.0000018	0.0000000	0.0000000
AABBDDEe	-----	.0000900	.0000085	.0000009	-----	.0000134	.0000009	.0000001	-----	.0000032	.0000002	.0000000
AABBDdEE	-----	.0000900	.0000085	.0000009	-----	.0000134	.0000009	.0000001	-----	.0000032	.0000002	.0000000
AABbDDEE	-----	.0000900	.0000085	.0000009	-----	.0000134	.0000009	.0000001	-----	.0000032	.0000002	.0000000
AaBBDDEE	-----	.0000900	.0000085	.0000009	-----	.0000134	.0000009	.0000001	-----	.0000032	.0000002	.0000000
AABBDDee	-----	.0000321	.0000075	.0000014	-----	.0000058	.0000010	.0000001	-----	.0000015	.0000002	.0000000
AABBddEE	-----	.0000321	.0000075	.0000014	-----	.0000058	.0000010	.0000001	-----	.0000015	.0000002	.0000000
AAbbDDEE	-----	.0000321	.0000075	.0000014	-----	.0000058	.0000010	.0000001	-----	.0000015	.0000002	.0000000
aaBBDDEE	-----	.0000321	.0000075	.0000014	-----	.0000058	.0000010	.0000001	-----	.0000015	.0000002	.0000000
AABBDdEe	-----	.0001543	.0000354	.0000066	-----	.0000249	.0000044	.0000006	-----	.0000062	.0000010	.0000001
AABbDDEe	-----	.0001543	.0000354	.0000066	-----	.0000249	.0000044	.0000006	-----	.0000062	.0000010	.0000001
AABbDdEE	-----	.0001543	.0000354	.0000066	-----	.0000249	.0000044	.0000006	-----	.0000062	.0000010	.0000001
AaBBDDEe	-----	.0001543	.0000354	.0000066	-----	.0000249	.0000044	.0000006	-----	.0000062	.0000010	.0000001
AaBBDdEE	-----	.0001543	.0000354	.0000066	-----	.0000249	.0000044	.0000006	-----	.0000062	.0000010	.0000001
AaBbDDEE	-----	.0001543	.0000354	.0000066	-----	.0000249	.0000044	.0000006	-----	.0000062	.0000010	.0000001
AABBDdee	-----	.0000643	.0000360	.0000124	-----	.0000115	.0000055	.0000014	-----	.0000030	.0000014	.0000003
AABBddEe	-----	.0000643	.0000360	.0000124	-----	.0000115	.0000055	.0000014	-----	.0000030	.0000014	.0000003
AABbDDee	-----	.0000643	.0000360	.0000124	-----	.0000115	.0000055	.0000014	-----	.0000030	.0000014	.0000003
AABbddEe	-----	.0000643	.0000360	.0000124	-----	.0000115	.0000055	.0000014	-----	.0000030	.0000014	.0000003
AAbbDDEe	-----	.0000643	.0000360	.0000124	-----	.0000115	.0000055	.0000014	-----	.0000030	.0000014	.0000003
AAbbDdEE	-----	.0000643	.0000360	.0000124	-----	.0000115	.0000055	.0000014	-----	.0000030	.0000014	.0000003
AaBBDDee	-----	.0000643	.0000360	.0000124	-----	.0000115	.0000055	.0000014	-----	.0000030	.0000014	.0000003
AaBBddEE	-----	.0000643	.0000360	.0000124	-----	.0000115	.0000055	.0000014	-----	.0000030	.0000014	.0000003
AabbDDEE	-----	.0000643	.0000360	.0000124	-----	.0000115	.0000055	.0000014	-----	.0000030	.0000014	.0000003
aaBBDDEe	-----	.0000643	.0000360	.0000124	-----	.0000115	.0000055	.0000014	-----	.0000030	.0000014	.0000003
aaBBDdEE	-----	.0000643	.0000360	.0000124	-----	.0000115	.0000055	.0000014	-----	.0000030	.0000014	.0000003
aaBbDDEE	-----	.0000643	.0000360	.0000124	-----	.0000115	.0000055	.0000014	-----	.0000030	.0000014	.0000003
AABbDdEe	-----	.0002828	.0001643	.0000577	-----	.0000480	.0000235	.0000063	-----	.0000122	.0000056	.0000013
AaBBDdEe	-----	.0002828	.0001643	.0000577	-----	.0000480	.0000235	.0000063	-----	.0000122	.0000056	.0000013
AaBbDDEe	-----	.0002828	.0001643	.0000577	-----	.0000480	.0000235	.0000063	-----	.0000122	.0000056	.0000013
AaBbDdEE	-----	.0002828	.0001643	.0000577	-----	.0000480	.0000235	.0000063	-----	.0000122	.0000056	.0000013
AABBddee	-----	.0000321	.0000432	.0000269	-----	.0000058	.0000075	.0000040	-----	.0000015	.0000019	.0000010
AAbbDDee	-----	.0000321	.0000432	.0000269	-----	.0000058	.0000075	.0000040	-----	.0000015	.0000019	.0000010
AAbbddEE	-----	.0000321	.0000432	.0000269	-----	.0000058	.0000075	.0000040	-----	.0000015	.0000019	.0000010
aaBBDDee	-----	.0000321	.0000432	.0000269	-----	.0000058	.0000075	.0000040	-----	.0000015	.0000019	.0000010
aaBBddEE	-----	.0000321	.0000432	.0000269	-----	.0000058	.0000075	.0000040	-----	.0000015	.0000019	.0000010
aabbDDEE	-----	.0000321	.0000432	.0000269	-----	.0000058	.0000075	.0000040	-----	.0000015	.0000019	.0000010
AABbDdee	-----	.0001285	.0001858	.0001209	-----	.0000231	.0000310	.0000169	-----	.0000060	.0000078	.0000040
AABbddEe	-----	.0001285	.0001858	.0001209	-----	.0000231	.0000310	.0000169	-----	.0000060	.0000078	.0000040
AAbbDdEe	-----	.0001285	.0001858	.0001209	-----	.0000231	.0000310	.0000169	-----	.0000060	.0000078	.0000040
AaBBDdee	-----	.0001285	.0001858	.0001209	-----	.0000231	.0000310	.0000169	-----	.0000060	.0000078	.0000040
AaBBddEe	-----	.0001285	.0001858	.0001209	-----	.0000231	.0000310	.0000169	-----	.0000060	.0000078	.0000040
AaBbDDee	-----	.0001285	.0001858	.0001209	-----	.0000231	.0000310	.0000169	-----	.0000060	.0000078	.0000040
AaBbddEE	-----	.0001285	.0001858	.0001209	-----	.0000231	.0000310	.0000169	-----	.0000060	.0000078	.0000040
AabbDDEe	-----	.0001285	.0001858	.0001209	-----	.0000231	.0000310	.0000169	-----	.0000060	.0000078	.0000040
AabbDdEE	-----	.0001285	.0001858	.0001209	-----	.0000231	.0000310	.0000169	-----	.0000060	.0000078	.0000040
aaBBDdEe	-----	.0001285	.0001858	.0001209	-----	.0000231	.0000310	.0000169	-----	.0000060	.0000078	.0000040
aaBbDDEe	-----	.0001285	.0001858	.0001209	-----	.0000231	.0000310	.0000169	-----	.0000060	.0000078	.0000040
aaBbDdEE	-----	.0001285	.0001858	.0001209	-----	.0000231	.0000310	.0000169	-----	.0000060	.0000078	.0000040
AABbddee	-----	.0000643	.0002382	.0002916	-----	.0000115	.0000434	.0000497	-----	.0000030	.0000114	.0000126
AAbbDdee	-----	.0000643	.0002382	.0002916	-----	.0000115	.0000434	.0000497	-----	.0000030	.0000114	.0000126
AAbbddEe	-----	.0000643	.0002382	.0002916	-----	.0000115	.0000434	.0000497	-----	.0000030	.0000114	.0000126
AaBBddee	-----	.0000643	.0002382	.0002916	-----	.0000115	.0000434	.0000497	-----	.0000030	.0000114	.0000126
AaBbDDee	-----	.0000643	.0002382	.0002916	-----	.0000115	.0000434	.0000497	-----	.0000030	.0000114	.0000126
AaBbddEE	-----	.0000643	.0002382	.0002916	-----	.0000115	.0000434	.0000497	-----	.0000030	.0000114	.0000126
AaBBDdee	-----	.0000643	.0002382	.0002916	-----	.0000115	.0000434	.0000497	-----	.0000030	.0000114	.0000126
AaBBddEe	-----	.0000643	.0002382	.0002916	-----	.0000115	.0000434	.0000497	-----	.0000030	.0000114	.0000126
AaBbDDEe	-----	.0000643	.0002382	.0002916	-----	.0000115	.0000434	.0000497	-----	.0000030	.0000114	.0000126
AaBbDdEE	-----	.0000643	.0002382	.0002916	-----	.0000115	.0000434	.0000497	-----	.0000030	.0000114	.0000126
AabbDDEE	-----	.0000643	.0002382	.0002916	-----	.0000115	.0000434	.0000497	-----	.0000030	.0000114	.0000126
aaBbDDEe	-----	.0000643	.0002382	.0002916	-----	.0000115	.0000434	.0000497	-----	.0000030	.0000114	.0000126
aaBbDdEE	-----	.0000643	.0002382	.0002916	-----	.0000115	.0000434	.0000497	-----	.0000030	.0000114	.0000126
AaBbDdEe	.0907029	.0149372	.0033698	.0010517	.0384467	.0054525	.0009365	.0002073	.0196059	.0026189	.0003923	.0000704
AAbbddee	-----	.0000321	.0003287	.0007908	-----	.0000058	.0000629	.0001557	-----	.0000015	.0000167	.0000418
aaBBddee	-----	.0000321	.0003287	.0007908	-----	.0000058	.0000629	.0001557	-----	.0000015	.0000167	.0000418
aabbDDee	-----	.0000321	.0003287	.0007908	-----	.0000058	.0000629	.0001557	-----	.0000015	.0000167	.0000418
aabbddEE	-----	.0000321	.0003287	.0007908	-----	.0000058	.0000629	.0001557	-----	.0000015	.0000167	.0000418
AaBbDdee	-----	.0105488	.0055177	.0029070	-----	.0046654	.0020399	.0008209	-----	.0024145	.0009817	.0003443
AaBbddEe	-----	.0105488	.0055177	.0029070	-----	.0046654	.0020399	.0008209	-----	.0024145	.0009817	.0003443
AabbDdEe	-----	.0105488	.0055177	.0029070	-----	.0046654	.0020399	.0008209	-----	.0024145	.0009817	.0003443
aaBbDdEe	-----	.0105488	.0055177	.0029070	-----	.0046654	.0020399	.0008209	-----	.0024145	.0009817	.0003443
AaBbddee	-----	.0104123	.0121626	.0104074	-----	.0046423	.0053136	.0040417	-----	.0024085	.0027341	.0019754
AabbDdee	-----	.0104123	.0121626	.0104074	-----	.0046423	.0053136	.0040417	-----	.0024085	.0027341	.0019754
AabbddEe	-----	.0104123	.0121626	.0104074	-----	.0046423	.0053136	.0040417	-----	.0024085	.0027341	.0019754
aaBbDdee	-----	.0104123	.0121626	.0104074	-----	.0046423	.0053136	.0040417	-----	.0024085	.0027341	.0019754
aabbDdEe	-----	.0104123	.0121626	.0104074	-----	.0046423	.0053136	.0040417	-----	.0024085	.0027341	.0019754
Aabbddee	-----	.0103481	.0317470	.0478775	-----	.0046308	.0150326	.0233767	-----	.0024055	.0079610	.0125095
aaBbddee	-----	.0103481	.0317370	.0478775	-----	.0046308	.0150326	.0233767	-----	.0024055	.0079610	.0125095
aabbDdee	-----	.0103481	.0317370	.0478775	-----	.0046308	.0150326	.0233767	-----	.0024055	.0079610	.0125095
aabbddEe	-----	.0103481	.0317470	.0478775	-----	.0046308	.0150326	.0233767	-----	.0024055	.0079610	.0125095
aabbddee	.9070289	.8330183	.7665649	.7246644	.9611688	.9284704	.8975079	.8772606	.9802959	.9633843	.9470770	.9362800

Table 32.--Relative frequencies of genotypes when native population (AABBDDEE) is overflooded once in parental generation by X release insects (aabbddee) for every native insect--Continued

Genotype	X = 100				X = 400				X = 1,000			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
AABBDDEE	0.0000248	0.0000004	0.0000000	0.0000000	0.0000040	0.0000001	0.0000000	0.0000000	0.0000010	0.0000000	0.0000000	0.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.

Table 33.--Relative frequencies of male genotypes when native population (3 autosomal genes BBDDEE plus 1 sex-linked gene AA; female is heterogametic) is overflooded once in parental generation by X release insects (aabbddee, a-bbddee) for every native insect

Genotype	X = 1				X = 2				X = 3			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
AABBDDEE--	0.1250000	0.0395508	0.0137806	0.0062786	0.0555555	0.0096451	0.0020261	0.0005978	0.0312500	0.0036926	0.0005635	0.0001247
AABBDDEe--	-----	.0087891	.0087547	.0067026	-----	.0038580	.0021366	.0010855	-----	.0020142	.0007745	.0002980
AABBDdEE--	-----	.0087891	.0087547	.0067026	-----	.0038580	.0021366	.0010855	-----	.0020142	.0007745	.0002980
AABbDDEE--	-----	.0087891	.0087547	.0067026	-----	.0038580	.0021366	.0010855	-----	.0020142	.0007745	.0002980
AaBBDDEE--	-----	.0087891	.0087547	.0067026	-----	.0038580	.0021366	.0010855	-----	.0020142	.0007745	.0002980
AABBDDee--	-----	.0004883	.0013905	.0017889	-----	.0003858	.0005633	.0004298	-----	.0002747	.0002661	.0001787
AABBddEE--	-----	.0004883	.0013905	.0017889	-----	.0003858	.0005633	.0004298	-----	.0002747	.0002661	.0001787
AAbbDDEE--	-----	.0004883	.0013905	.0017889	-----	.0003858	.0005633	.0004298	-----	.0002747	.0002661	.0001787
aaBBDDEE--	-----	.0004883	.0013905	.0017889	-----	.0003858	.0005633	.0004298	-----	.0002747	.0002661	.0001787
AABBDdEe--	-----	.0097656	.0095901	.0091310	-----	.0046296	.0034105	.0024213	-----	.0025635	.0015281	.0008675
AABbDDEe--	-----	.0097656	.0095901	.0091310	-----	.0046296	.0034105	.0024213	-----	.0025635	.0015281	.0008675
AABbDdEE--	-----	.0097656	.0095901	.0091310	-----	.0046296	.0034105	.0024213	-----	.0025635	.0015281	.0008675
AaBBDDEe--	-----	.0097656	.0095901	.0091310	-----	.0046296	.0034105	.0024213	-----	.0025635	.0015281	.0008675
AaBBDdEE--	-----	.0097656	.0095901	.0091310	-----	.0046296	.0034105	.0024213	-----	.0025635	.0015281	.0008675
AaBbDDEE--	-----	.0097656	.0095901	.0091310	-----	.0046296	.0034105	.0024213	-----	.0025635	.0015281	.0008675
AABBDdee--	-----	.0009766	.0021629	.0029446	-----	.0007716	.0012043	.0013036	-----	.0005493	.0006844	.0006119
AABBddEe--	-----	.0009766	.0021629	.0029446	-----	.0007716	.0012043	.0013036	-----	.0005493	.0006844	.0006119
AABbDDee--	-----	.0009766	.0021629	.0029446	-----	.0007716	.0012043	.0013036	-----	.0005493	.0006844	.0006119
AABbddEE--	-----	.0009766	.0021629	.0029446	-----	.0007716	.0012043	.0013036	-----	.0005493	.0006844	.0006119
AAbbDDEe--	-----	.0009766	.0021629	.0029446	-----	.0007716	.0012043	.0013036	-----	.0005493	.0006844	.0006119
AAbbDdEE--	-----	.0009766	.0021629	.0029446	-----	.0007716	.0012043	.0013036	-----	.0005493	.0006844	.0006119
AaBBDDee--	-----	.0009766	.0021629	.0029446	-----	.0007716	.0012043	.0013036	-----	.0005493	.0006844	.0006119
AaBBddEE--	-----	.0009766	.0021629	.0029446	-----	.0007716	.0012043	.0013036	-----	.0005493	.0006844	.0006119
AabbDDEE--	-----	.0009766	.0021629	.0029446	-----	.0007716	.0012043	.0013036	-----	.0005493	.0006844	.0006119
aaBBDDEe--	-----	.0009766	.0021629	.0029446	-----	.0007716	.0012043	.0013036	-----	.0005493	.0006844	.0006119
aaBBDdEE--	-----	.0009766	.0021629	.0029446	-----	.0007716	.0012043	.0013036	-----	.0005493	.0006844	.0006119
aaBbDDEE--	-----	.0009766	.0021629	.0029446	-----	.0007716	.0012043	.0013036	-----	.0005493	.0006844	.0006119
AABbDdEe--	-----	.0117188	.0152435	.0155952	-----	.0061728	.0075176	.0066767	-----	.0036621	.0040078	.0031031
AaBBDdEe--	-----	.0117188	.0152435	.0155952	-----	.0061728	.0075176	.0066767	-----	.0036621	.0040078	.0031031
AaBbDDEe--	-----	.0117188	.0152435	.0155952	-----	.0061728	.0075176	.0066767	-----	.0036621	.0040078	.0031031
AaBbDdEE--	-----	.0117188	.0152435	.0155952	-----	.0061728	.0075176	.0066767	-----	.0036621	.0040078	.0031031
AABBddee--	-----	.0004883	.0008411	.0012281	-----	.0003858	.0006437	.0008620	-----	.0002747	.0004399	.0005237
AAbbDDee--	-----	.0004883	.0008411	.0012281	-----	.0003858	.0006437	.0008620	-----	.0002747	.0004399	.0005237
AAbbddEE--	-----	.0004883	.0008411	.0012281	-----	.0003858	.0006437	.0008620	-----	.0002747	.0004399	.0005237
aaBBDDee--	-----	.0004883	.0008411	.0012281	-----	.0003858	.0006437	.0008620	-----	.0002747	.0004399	.0005237
aaBBddEE--	-----	.0004883	.0008411	.0012281	-----	.0003858	.0006437	.0008620	-----	.0002747	.0004399	.0005237
aabbDDEE--	-----	.0004883	.0008411	.0012281	-----	.0003858	.0006437	.0008620	-----	.0002747	.0004399	.0005237
AABbDdee--	-----	.0019531	.0044632	.0060337	-----	.0015432	.0033462	.0042357	-----	.0010986	.0022233	.0025679
AABbddEe--	-----	.0019531	.0044632	.0060337	-----	.0015432	.0033462	.0042357	-----	.0010986	.0022233	.0025679
AAbbDdEe--	-----	.0019531	.0044632	.0060337	-----	.0015432	.0033462	.0042357	-----	.0010986	.0022233	.0025679
AaBBDdee--	-----	.0019531	.0044632	.0060337	-----	.0015432	.0033462	.0042357	-----	.0010986	.0022233	.0025679
AaBbddEe--	-----	.0019531	.0044632	.0060337	-----	.0015432	.0033462	.0042357	-----	.0010986	.0022233	.0025679
AaBbDDee--	-----	.0019531	.0044632	.0060337	-----	.0015432	.0033462	.0042357	-----	.0010986	.0022233	.0025679
AaBbddEE--	-----	.0019531	.0044632	.0060337	-----	.0015432	.0033462	.0042357	-----	.0010986	.0022233	.0025679
AabbDDEe--	-----	.0019531	.0044632	.0060337	-----	.0015432	.0033462	.0042357	-----	.0010986	.0022233	.0025679
AabbDdEE--	-----	.0019531	.0044632	.0060337	-----	.0015432	.0033462	.0042357	-----	.0010986	.0022233	.0025679
aaBBDdEe--	-----	.0019531	.0044632	.0060337	-----	.0015432	.0033462	.0042357	-----	.0010986	.0022233	.0025679
aaBbDDEe--	-----	.0019531	.0044632	.0060337	-----	.0015432	.0033462	.0042357	-----	.0010986	.0022233	.0025679
aaBbDdEE--	-----	.0019531	.0044632	.0060337	-----	.0015432	.0033462	.0042357	-----	.0010986	.0022233	.0025679
AABbddee--	-----	.0009766	.0021629	.0029644	-----	0007716	.0022009	.0033220	-----	.0005493	.0017272	.0026030
AAbbDdee--	-----	.0009766	.0021629	.0029644	-----	.0007716	.0022009	.0033220	-----	.0005493	.0017272	.0026030
AAbbddEe--	-----	.0009766	.0021629	.0029644	-----	.0007716	.0022009	.0033220	-----	.0005493	.0017272	.0026030
AaBBDdee--	-----	.0009766	.0021629	.0029644	-----	.0007716	.0022009	.0033220	-----	.0005493	.0017272	.0026030
AabbDDee--	-----	.0009766	.0021629	.0029644	-----	.0007716	.0022009	.0033220	-----	.0005493	.0017272	.0026030
AabbddEE--	-----	.0009766	.0021629	.0029644	-----	.0007716	.0022009	.0033220	-----	.0005493	.0017272	.0026030
aaBBDdee--	-----	.0009766	.0021629	.0029644	-----	.0007716	.0022009	.0033220	-----	.0005493	.0017272	.0026030
aaBbDdEe--	-----	.0009766	.0021629	.0029644	-----	.0007716	.0022009	.0033220	-----	.0005493	.0017272	.0026030
aaBbDDee--	-----	.0009766	.0021629	.0029644	-----	.0007716	.0022009	.0033220	-----	.0005493	.0017272	.0026030
aaBbddEE--	-----	.0009766	.0021629	.0029644	-----	.0007716	.0022009	.0033220	-----	.0005493	.0017272	.0026030
aabbDDEe--	-----	.0009766	.0021629	.0029644	-----	.0007716	.0022009	.0033220	-----	.0005493	.0017272	.0026030
aabbDdEE--	-----	.0009766	.0021629	.0029644	-----	.0007716	.0022009	.0033220	-----	.0005493	.0017272	.0026030
AaBbDdEe--	.2500000	.0859375	.0437317	.0342350	.2222222	.0709876	.0338274	.0245779	.1875000	.0541992	.0235645	.0154140
AAbbddee--	-----	.0004883	.0013905	.0017889	-----	.0003858	.0018814	.0032005	-----	.0002747	.0016952	.0032344
aaBBddee--	-----	.0004883	.0013905	.0017889	-----	.0003858	.0018814	.0032005	-----	.0002747	.0016952	.0032344
aabbDDee--	-----	.0004883	.0013905	.0017889	-----	.0003858	.0018814	.0032005	-----	.0002747	.0016952	.0032344
aabbddEE--	-----	.0004883	.0013905	.0017889	-----	.0003858	.0018814	.0032005	-----	.0002747	.0016952	.0032344
AaBbDdee--	-----	.0117188	.0152435	.0155950	-----	.0154321	.0180610	.0184635	-----	.0153809	.0158696	.0152332
AaBbddEe--	-----	.0117188	.0152435	.0155950	-----	.0154321	.0180610	.0184635	-----	.0153809	.0158696	.0152332
AabbDdEe--	-----	.0117188	.0152435	.0155950	-----	.0154321	.0180610	.0184635	-----	.0153809	.0158696	.0152332
aaBbDdEe--	-----	.0117188	.0152435	.0155950	-----	.0154321	.0180610	.0184635	-----	.0153809	.0158696	.0152332
AaBbddee--	-----	.0097656	.0095901	.0091311	-----	.0138889	.0160126	.0176403	-----	.0142822	.0171321	.0191784
AabbDdee--	-----	.0097656	.0095901	.0091311	-----	.0138889	.0160126	.0176403	-----	.0142822	.0171321	.0191784
AabbddEe--	-----	.0097656	.0095901	.0091311	-----	.0138889	.0160126	.0176403	-----	.0142822	.0171321	.0191784
aaBbDdee--	-----	.0097656	.0095901	.0091311	-----	.0138889	.0160126	.0176403	-----	.0142822	.0171321	.0191784
aaBbddEe--	-----	.0097656	.0095901	.0091311	-----	.0138889	.0160126	.0176403	-----	.0142822	.0171321	.0191784
aabbDdEe--	-----	.0097656	.0095901	.0091311	-----	.0138889	.0160126	.0176403	-----	.0142822	.0171321	.0191784
Aabbddee--	-----	.0087891	.0087547	.0067027	-----	.0131173	.0209440	.0216570	-----	.0137329	.0269743	.0315849
aaBbddee--	-----	.0087891	.0087547	.0067027	-----	.0131173	.0209440	.0216570	-----	.0137329	.0269743	.0315849
aabbDdee--	-----	.0087891	.0087547	.0067027	-----	.0131173	.0209440	.0216570	-----	.0137329	.0269743	.0315849
aabbddEe--	-----	.0087891	.0087547	.0067027	-----	.0131173	.0209440	.0216570	-----	.0137329	.0269743	.0315849
aabbddee--	.1250000	.0395508	.0137806	.0062787	.2222222	.1114969	.0582889	.0366372	.2812500	.1716614	.1073034	.0771123

Table 33.--Relative frequencies of male genotypes when native population (3 autosomal genes BBDDEE plus 1 sex-linked gene AA; female is heterogametic) is overflooded once in parental generation by X release insects (aabbddee, a-bbddee) for every native insect--Continued

Genotype	X = 4				X = 5				X = 10			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
AABBDDEE	0.0200000	0.0018000	0.0002184	0.0000388	0.0139000	0.0010188	0.0001036	0.0000156	0.0041322	0.0001729	0.0000104	0.0000009
AABBDDEe	-----	.0012800	.0003574	.0001118	-----	.0007837	.0001926	.0000512	-----	.0001921	.0000276	.0000045
[illegible]	-----	[illegible]	[illegible]	.0001118	-----	.0007837	.0001926	.0000512	-----	.0001921	.0000276	.0000045
[illegible]	-----	[illegible]	[illegible]	.0001118	-----	.0007837	.0001926	.0000512	-----	.0001921	.0000276	.0000045
[illegible]	-----	[illegible]	[illegible]	.0001118	-----	.0007837	.0001926	.0000512	-----	.0001921	.0000276	.0000045
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	.0001507	.0000895	.0000421	-----	.0000534	.0000183	.0000053
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	.0001507	.0000895	.0000421	-----	.0000534	.0000183	.0000053
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	.0001507	.0000895	.0000421	-----	.0000534	.0000183	.0000053
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	.0001507	.0000895	.0000421	-----	.0000534	.0000183	.0000053
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	.0010851	.0004863	.0002025	-----	.0002988	.0000925	.0000253
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	.0010851	.0004863	.0002025	-----	.0002988	.0000925	.0000253
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	.0010851	.0004863	.0002025	-----	.0002988	.0000925	.0000253
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	.0010851	.0004863	.0002025	-----	.0002988	.0000925	.0000253
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	.0010851	.0004863	.0002025	-----	.0002988	.0000925	.0000253
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	.0010851	.0004863	.0002025	-----	.0002988	.0000925	.0000253
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	.0003014	.0002856	.0001946	-----	.0001067	.0000742	.0000349
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	.0003014	.0002856	.0001946	-----	.0001067	.0000742	.0000349
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	.0003014	.0002856	.0001946	-----	.0001067	.0000742	.0000349
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	.0003014	.0002856	.0001946	-----	.0001067	.0000742	.0000349
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	.0003014	.0002856	.0001946	-----	.0001067	.0000742	.0000349
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	.0003014	.0002856	.0001946	-----	.0001067	.0000742	.0000349
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	.0003014	.0002856	.0001946	-----	.0001067	.0000742	.0000349
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	.0003014	.0002857	.0001946	-----	.0001067	.0000742	.0000349
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	.0003014	.0002857	.0001946	-----	.0001067	.0000742	.0000349
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	.0003014	.0002857	.0001946	-----	.0001067	.0000742	.0000349
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	.0016879	.0015492	.0009740	-----	.0005123	.0003658	.0001698
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	.0016879	.0015492	.0009740	-----	.0005123	.0003658	.0001698
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	.0016879	.0015492	.0009740	-----	.0005123	.0003658	.0001698
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	.0016879	.0015492	.0009740	-----	.0005123	.0003658	.0001698
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	.0001507	.0002280	.0002248	-----	.0000534	.0000752	.0000574
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	.0001507	.0002280	.0002248	-----	.0000534	.0000752	.0000574
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	.0001507	.0002280	.0002248	-----	.0000534	.0000752	.0000574
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	.0002280	.0002248	-----	.0000534	.0000752	.0000574
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	.0002280	.0002248	-----	.0000534	.0000752	.0000574
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	.0002280	.0002248	-----	.0000534	.0000752	.0000574
[illegible]	-----	[illegible]	[illegible]	.0016265	-----	.0006028	.0010991	.0010915	-----	.0002134	.0003404	.0002699
[illegible]	-----	[illegible]	[illegible]	.0016265	-----	.0006028	.0010991	.0010915	-----	.0002134	.0003404	.0002699
[illegible]	-----	[illegible]	[illegible]	.0016265	-----	.0006028	.0010991	.0010915	-----	.0002134	.0003404	.0002699
[illegible]	-----	[illegible]	[illegible]	.0016265	-----	.0006028	.0010991	.0010915	-----	.0002134	.0003404	.0002699
[illegible]	-----	[illegible]	[illegible]	.0016265	-----	.0006028	.0010991	.0010915	-----	.0002134	.0003404	.0002699
[illegible]	-----	[illegible]	[illegible]	.0016265	-----	.0006028	.0010991	.0010915	-----	.0002134	.0003404	.0002699
[illegible]	-----	[illegible]	[illegible]	.0016265	-----	.0006028	.0010991	.0010915	-----	.0002134	.0003404	.0002699
[illegible]	-----	[illegible]	[illegible]	.0016265	-----	.0006028	.0010991	.0010915	-----	.0002134	.0003404	.0002699
[illegible]	-----	[illegible]	[illegible]	.0016265	-----	.0006028	.0010991	.0010915	-----	.0002134	.0003404	.0002699
[illegible]	-----	[illegible]	[illegible]	.0016265	-----	.0006028	.0010991	.0010915	-----	.0002134	.0003404	.0002699
[illegible]	-----	[illegible]	.0013222	.0019536	-----	.0003014	.0010265	.0014830	-----	.0001067	.0003851	.0005102
[illegible]	-----	[illegible]	.0013222	.0019536	-----	.0003014	.0010265	.0014830	-----	.0001067	.0003851	.0005102
[illegible]	-----	[illegible]	.0013222	.0019536	-----	.0003014	.0010265	.0014830	-----	.0001067	.0003851	.0005102
[illegible]	-----	[illegible]	.0013222	.0019536	-----	.0003014	.0010265	.0014830	-----	.0001067	.0003851	.0005102
[illegible]	-----	[illegible]	.0013222	.0019536	-----	.0003014	.0010265	.0014830	-----	.0001067	.0003851	.0005102
[illegible]	-----	[illegible]	.0013222	.0019536	-----	.0003014	.0010265	.0014830	-----	.0001067	.0003851	.0005102
[illegible]	-----	[illegible]	.0013222	.0019536	-----	.0003014	.0010265	.0014830	-----	.0001067	.0003851	.0005102
[illegible]	-----	[illegible]	.0013222	.0019536	-----	.0003014	.0010265	.0014830	-----	.0001067	.0003851	.0005102
[illegible]	-----	[illegible]	.0013222	.0019536	-----	.0003014	.0010265	.0014830	-----	.0001067	.0003851	.0005102
[illegible]	[illegible]	[illegible]	.0169625	.0100942	.1388888	.0342399	.0127442	.0069885	.0826446	.0163069	.0047324	.0019635
[illegible]	-----	[illegible]	.0014098	.0028643	-----	.0001507	.0011570	.0024459	-----	.0000534	.0004932	.0011345
[illegible]	-----	[illegible]	.0014098	.0028643	-----	.0001507	.0011570	.0024459	-----	.0000534	.0004932	.0011345
[illegible]	-----	[illegible]	.0014098	.0028643	-----	.0001507	.0011570	.0024459	-----	.0000534	.0004932	.0011345
[illegible]	-----	[illegible]	.0014098	.0028643	-----	.0001507	.0011570	.0024459	-----	.0000534	.0004932	.0011345
[illegible]	-----	[illegible]	.0133520	.0119863	-----	.0132620	.0112640	.0095031	-----	.0089645	.0058268	.0039119
[illegible]	-----	[illegible]	.0133520	.0119863	-----	.0132620	.0112640	.0095031	-----	.0089645	.0058268	.0039119
[illegible]	-----	[illegible]	.0133520	.0119863	-----	.0132620	.0112640	.0095031	-----	.0089645	.0058268	.0039119
[illegible]	-----	[illegible]	.0133520	.0119863	-----	.0132620	.0112640	.0095031	-----	.0089645	.0058268	.0039119
[illegible]	-----	[illegible]	.0136000	.0164867	-----	.0126591	.0153655	.0165684	-----	.0087511	.0104532	.0100960
[illegible]	-----	[illegible]	.0136000	.0164867	-----	.0126591	.0153655	.0165684	-----	.0087511	.0104532	.0100960
[illegible]	-----	[illegible]	.0136000	.0164867	-----	.0126591	.0153655	.0165684	-----	.0087511	.0104532	.0100960
[illegible]	-----	[illegible]	.0136000	.0164867	-----	.0126591	.0153655	.0165684	-----	.0087511	.0104532	.0100960
[illegible]	-----	[illegible]	.0136000	.0164867	-----	.0126591	.0153655	.0165684	-----	.0087511	.0104532	.0100960
[illegible]	-----	[illegible]	.0136000	.0164867	-----	.0126591	.0153655	.0165684	-----	.0087511	.0104532	.0100960
[illegible]	-----	[illegible]	.0132000	.0291464	-----	.0123577	.0294216	.0385180	-----	.0086444	.0242473	.0348103
[illegible]	-----	[illegible]	.0132000	.0291464	-----	.0123577	.0294216	.0385180	-----	.0086444	.0242473	.0348103
[illegible]	-----	[illegible]	.0132000	.0291464	-----	.0123577	.0294216	.0385180	-----	.0086444	.0242473	.0348103
[illegible]	-----	[illegible]	.0132000	.0291464	-----	.0123577	.0294216	.0385180	-----	.0086444	.0242473	.0348103
[illegible]	[illegible]	[illegible]	.1506456	.1165559	.3472222	.2533332	.1870379	.1516475	.4132231	.3500978	.2980147	.2670351

Table 33.--Relative frequencies of male genotypes when native population (3 autosomal genes BBDDEE plus 1 sex-linked gene AA; female is heterogametic) is overflooded once in parental generation by X release insects (aabbddee, a-bbddee) for every native insect--Continued

Genotype	X = 20				X = 50				X = 100			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
AABBDDEE ---	0.0011338	0.0000315	0.0000012	0.0000001	0.0001922	0.0000039	0.0000010	0.0000000	0.0000490	0.0000009	0.0000000	0.0000000
AABBDDEe ---	-----	.0000450	.0000042	.0000004	-----	.0000067	.0000004	.0000000	-----	.0000016	.0000001	.0000000
AABBDdEE ---	-----	.0000450	.0000042	.0000004	-----	.0000067	.0000004	.0000000	-----	.0000016	.0000001	.0000000
AABbDDEE ---	-----	.0000450	.0000042	.0000004	-----	.0000067	.0000004	.0000000	-----	.0000016	.0000001	.0000000
AaBBDDEE ---	-----	.0000450	.0000042	.0000004	-----	.0000067	.0000004	.0000000	-----	.0000016	.0000001	.0000000
AABBDDee ---	-----	.0000161	.0000038	.0000007	-----	.0000029	.0000005	.0000001	-----	.0000008	.0000001	.0000000
AABBddEE ---	-----	.0000161	.0000038	.0000007	-----	.0000029	.0000005	.0000001	-----	.0000008	.0000001	.0000000
AAbbDDEE ---	-----	.0000161	.0000038	.0000007	-----	.0000029	.0000005	.0000001	-----	.0000008	.0000001	.0000000
aaBBDDEE ---	-----	.0000161	.0000038	.0000007	-----	.0000029	.0000005	.0000001	-----	.0000008	.0000001	.0000000
AABBDdEe ---	-----	.0000771	.0000177	.0000033	-----	.0000125	.0000022	.0000003	-----	.0000031	.0000005	.0000001
AABbDDEe ---	-----	.0000771	.0000177	.0000033	-----	.0000125	.0000022	.0000003	-----	.0000031	.0000005	.0000001
AABbDdEE ---	-----	.0000771	.0000177	.0000033	-----	.0000125	.0000022	.0000003	-----	.0000031	.0000005	.0000001
AaBBDDEe ---	-----	.0000771	.0000177	.0000033	-----	.0000125	.0000022	.0000003	-----	.0000031	.0000005	.0000001
AaBBDdEE ---	-----	.0000771	.0000177	.0000033	-----	.0000125	.0000022	.0000003	-----	.0000031	.0000005	.0000001
AaBbDDEE ---	-----	.0000771	.0000177	.0000033	-----	.0000125	.0000022	.0000003	-----	.0000031	.0000005	.0000001
AABBDdee ---	-----	.0000321	.0000180	.0000062	-----	.0000058	.0000028	.0000007	-----	.0000015	.0000007	.0000002
AABBddEe ---	-----	.0000321	.0000180	.0000062	-----	.0000058	.0000028	.0000007	-----	.0000015	.0000007	.0000002
AABbDDee ---	-----	.0000321	.0000180	.0000062	-----	.0000058	.0000028	.0000007	-----	.0000015	.0000007	.0000002
AABbddEE ---	-----	.0000321	.0000180	.0000062	-----	.0000058	.0000028	.0000007	-----	.0000015	.0000007	.0000002
AAbbDDEe ---	-----	.0000321	.0000180	.0000062	-----	.0000058	.0000028	.0000007	-----	.0000015	.0000007	.0000002
AAbbDdEE ---	-----	.0000321	.0000180	.0000062	-----	.0000058	.0000028	.0000007	-----	.0000015	.0000007	.0000002
AaBBDDee ---	-----	.0000321	.0000180	.0000062	-----	.0000058	.0000028	.0000007	-----	.0000015	.0000007	.0000002
AaBBddEE ---	-----	.0000321	.0000180	.0000062	-----	.0000058	.0000028	.0000007	-----	.0000015	.0000007	.0000002
AaBbDDEE ---	-----	.0000321	.0000180	.0000062	-----	.0000058	.0000028	.0000007	-----	.0000015	.0000007	.0000002
aaBBDDEe ---	-----	.0000321	.0000180	.0000062	-----	.0000058	.0000028	.0000007	-----	.0000015	.0000007	.0000002
aaBBDdEE ---	-----	.0000321	.0000180	.0000062	-----	.0000058	.0000028	.0000007	-----	.0000015	.0000007	.0000002
aaBbDDEE ---	-----	.0000321	.0000180	.0000062	-----	.0000058	.0000028	.0000007	-----	.0000015	.0000007	.0000002
AABbDdEe ---	-----	.0001414	.0000822	.0000288	-----	.0000240	.0000117	.0000031	-----	.0000061	.0000028	.0000007
AaBBDdEe ---	-----	.0001414	.0000822	.0000288	-----	.0000240	.0000117	.0000031	-----	.0000061	.0000028	.0000007
AaBbDDEe ---	-----	.0001414	.0000822	.0000288	-----	.0000240	.0000117	.0000031	-----	.0000061	.0000028	.0000007
AaBbDdEE ---	-----	.0001414	.0000822	.0000288	-----	.0000240	.0000117	.0000031	-----	.0000061	.0000028	.0000007
AABBddee ---	-----	.0000161	.0000216	.0000134	-----	.0000029	.0000037	.0000020	-----	.0000008	.0000010	.0000005
AAbbDDee ---	-----	.0000161	.0000216	.0000134	-----	.0000029	.0000037	.0000020	-----	.0000008	.0000010	.0000005
AAbbddEE ---	-----	.0000161	.0000216	.0000134	-----	.0000029	.0000037	.0000020	-----	.0000008	.0000010	.0000005
aaBBDDee ---	-----	.0000161	.0000216	.0000134	-----	.0000029	.0000037	.0000020	-----	.0000008	.0000010	.0000005
aaBBddEE ---	-----	.0000161	.0000216	.0000134	-----	.0000029	.0000037	.0000020	-----	.0000008	.0000010	.0000005
aabbDDEE ---	-----	.0000161	.0000216	.0000134	-----	.0000029	.0000037	.0000020	-----	.0000008	.0000010	.0000005
AABbDdee ---	-----	.0000643	.0000929	.0000604	-----	.0000115	.0000155	.0000084	-----	.0000020	.0000039	.0000020
AABbddEe ---	-----	.0000643	.0000929	.0000604	-----	.0000115	.0000155	.0000084	-----	.0000030	.0000039	.0000020
AAbbDdEe ---	-----	.0000643	.0000929	.0000604	-----	.0000115	.0000155	.0000084	-----	.0000030	.0000039	.0000020
AaBBDdee ---	-----	.0000643	.0000929	.0000604	-----	.0000115	.0000155	.0000084	-----	.0000030	.0000039	.0000020
AaBBddEe ---	-----	.0000643	.0000929	.0000604	-----	.0000115	.0000155	.0000084	-----	.0000030	.0000039	.0000020
AaBbDDee ---	-----	.0000643	.0000929	.0000604	-----	.0000115	.0000155	.0000084	-----	.0000030	.0000039	.0000020
AaBbddEE ---	-----	.0000643	.0000929	.0000604	-----	.0000115	.0000155	.0000084	-----	.0000030	.0000039	.0000020
AabbDDEe ---	-----	.0000643	.0000929	.0000604	-----	.0000115	.0000155	.0000084	-----	.0000030	.0000039	.0000020
AabbDdEE ---	-----	.0000643	.0000929	.0000604	-----	.0000115	.0000155	.0000084	-----	.0000030	.0000039	.0000020
aaBBDdEe ---	-----	.0000643	.0000929	.0000604	-----	.0000115	.0000155	.0000084	-----	.0000030	.0000039	.0000020
aaBbDDEe ---	-----	.0000643	.0000929	.0000604	-----	.0000115	.0000155	.0000084	-----	.0000030	.0000039	.0000020
aaBbDdEE ---	-----	.0000643	.0000929	.0000604	-----	.0000115	.0000155	.0000084	-----	.0000030	.0000039	.0000020
AABbddee ---	-----	.0000321	.0001191	.0001458	-----	.0000058	.0000217	.0000248	-----	.0000015	.0000057	.0000063
AAbbDdee ---	-----	.0000321	.0001191	.0001458	-----	.0000058	.0000217	.0000248	-----	.0000015	.0000057	.0000063
AAbbddEe ---	-----	.0000321	.0001191	.0001458	-----	.0000058	.0000217	.0000248	-----	.0000015	.0000057	.0000063
AaBBddee ---	-----	.0000321	.0001191	.0001458	-----	.0000058	.0000217	.0000248	-----	.0000015	.0000057	.0000063
AabbDDee ---	-----	.0000321	.0001191	.0001458	-----	.0000058	.0000217	.0000248	-----	.0000015	.0000057	.0000063
AabbddEE ---	-----	.0000321	.0001191	.0001458	-----	.0000058	.0000217	.0000248	-----	.0000015	.0000067	.0000063
aaBBDdee ---	-----	.0000321	.0001191	.0001458	-----	.0000058	.0000217	.0000248	-----	.0000015	.0000067	.0000063
aaBBddEe ---	-----	.0000321	.0001191	.0001458	-----	.0000058	.0000217	.0000248	-----	.0000015	.0000067	.0000063
aaBbDDee ---	-----	.0000321	.0001191	.0001458	-----	.0000058	.0000217	.0000248	-----	.0000015	.0000067	.0000063
aaBbddEE ---	-----	.0000321	.0001191	.0001458	-----	.0000058	.0000217	.0000248	-----	.0000015	.0000067	.0000063
aabbDDEe ---	-----	.0000321	.0001191	.0001458	-----	.0000058	.0000217	.0000248	-----	.0000015	.0000067	.0000063
aabbDdEE ---	-----	.0000321	.0001191	.0001458	-----	.0000058	.0000217	.0000248	-----	.0000015	.0000067	.0000063
AaBbDdEe ---	.0453515	.0074686	.0016848	.0005258	.0192234	.0027263	.0004682	.0001037	.0098030	.0013095	.0001961	.0000352
AAbbddee ---	-----	.0000161	.0001643	.0003954	-----	.0000029	.0000315	.0000779	-----	.0000008	.0000084	.0000209
aaBBddee ---	-----	.0000161	.0001643	.0003954	-----	.0000029	.0000315	.0000779	-----	.0000008	.0000084	.0000209
aabbDDee ---	-----	.0000161	.0001643	.0003954	-----	.0000029	.0000315	.0000779	-----	.0000008	.0000084	.0000209
aabbddEE ---	-----	.0000161	.0001643	.0003954	-----	.0000029	.0000315	.0000779	-----	.0000008	.0000084	.0000209
AaBbDdee ---	-----	.0052704	.0027588	.0014533	-----	.0023327	.0010199	.0004104	-----	.0012072	.0004908	.0001721
AaBbddEe ---	-----	.0052704	.0027588	.0014533	-----	.0023327	.0010199	.0004104	-----	.0012072	.0004908	.0001721
AabbDdEe ---	-----	.0052704	.0027588	.0014533	-----	.0023327	.0010199	.0004104	-----	.0012072	.0004908	.0001721
aaBbDdEe ---	-----	.0052704	.0027588	.0014533	-----	.0023327	.0010199	.0004104	-----	.0012072	.0004908	.0001721
AaBbddee ---	-----	.0052062	.0060810	.0050235	-----	.0023116	.0026567	.0020208	-----	.0012042	.0013671	.0009877
AabbDdee ---	-----	.0052062	.0060810	.0052035	-----	.0023116	.0026567	.0020208	-----	.0012042	.0013671	.0009877
AabbddEe ---	-----	.0052062	.0060810	.0052035	-----	.0023116	.0026567	.0020208	-----	.0012042	.0013671	.0009877
aaBbDdee ---	-----	.0052062	.0060810	.0052035	-----	.0023116	.0026567	.0020208	-----	.0012042	.0013671	.0009877
aaBbddEe ---	-----	.0052062	.0060810	.0052035	-----	.0023116	.0026567	.0020208	-----	.0012042	.0013671	.0009877
aabbDdEe ---	-----	.0052062	.0060810	.0052035	-----	.0023116	.0026567	.0020208	-----	.0012042	.0013671	.0009877
Aabbddee ---	-----	.0051740	.0158733	.0239382	-----	.0023154	.0075163	.0016881	-----	.0012027	.0039804	.0062547
aaBbddee ---	-----	.0051740	.0158733	.0239382	-----	.0023154	.0075163	.0116881	-----	.0012027	.0039804	.0062547
aabbDdee ---	-----	.0051740	.0158733	.0239382	-----	.0023154	.0075163	.0116881	-----	.0012027	.0039804	.0062547
aabbddEe ---	-----	.0051740	.0158733	.0239382	-----	.0023154	.0075163	.0116881	-----	.0012027	.0039804	.0062547
aabbddee ---	.4535145	.4165088	.3832824	.3623336	.4805842	.4642351	.4487541	.4386308	.4901480	.4816920	.4735386	.4681402

Table 33.--Relative frequencies of male genotypes when native population (3 autosomal genes BBDDEE plus 1 sex-linked gene AA; female is heterogametic) is overflooded once in parental generation by X release insects (aabbddee, a-bbddee) for every native insect--Continued

Genotype	X = 200				X = 500				X = 1,000			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
[illegible]---	[illegible]	[illegible]	[illegible]	0.0000000	0.0000020	0.0000000	0.0000000	0.0000000	0.0000005	0.0000000	0.0000000	0.0000000
[illegible]---	-----	[illegible]	[illegible]	.0000000	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.

Table 34.--Relative frequencies of female genotypes when native population (3 autosomal genes BBDDEE plus 1 sex-linked gene AA; female is heterogametic) is overflooded once in parental generation by X release insects (aabbddee, a-bbddee) for every native insect

Genotype	X = 1				X = 2				X = 3			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
A BBDDEE	0.1250000	0.0439453	0.0181580	0.0096298	0.0555555	0.0115741	0.0030944	0.0011406	0.0312500	0.0046997	0.0009507	0.0002732
A BBDdEe---	-----	.0136720	.0135498	.0112679	-----	.0061728	.0038419	.0022981	-----	.0032959	.0015385	.0007318
A BBDdEE---	-----	.0136720	.0135498	.0112679	-----	.0061728	.0038419	.0022981	-----	.0032959	.0015384	.0007318
A BbDDEE---	-----	.0136720	.0135498	.0112679	-----	.0061728	.0038419	.0022961	-----	.0032959	.0015385	.0007318
A BBDDee---	-----	.0009766	.0024719	.0032711	-----	.0007716	.0011654	.0011446	-----	.0005493	.0006083	.0004846
A BBddEE---	-----	.0009766	.0024719	.0032711	-----	.0007716	.0011654	.0011446	-----	.0005493	.0006083	.0004846
A bbDDEE---	-----	.0009766	.0024719	.0032711	-----	.0007716	.0011654	.0011446	-----	.0005493	.0006083	.0004846
A BBDdEe---	-----	.0156250	.0172119	.0169284	-----	.0077160	.0071693	.0057595	-----	.0043945	.0035319	.0024191
A BbDDEe---	-----	.0156250	.0172119	.0169284	-----	.0077160	.0071693	.0057595	-----	.0043945	.0035319	.0024191
A BbDdEE---	-----	.0156250	**.0172119**	.0169284	-----	.0077160	.0071693	.0057595	-----	.0043945	.0035319	.0024191
A BBDdee---	-----	.0019531	.0043945	.0059812	-----	.0015432	.0028774	.0034213	-----	.0010986	.0017960	.0018958
A BBddEe---	-----	.0019531	.0043945	.0059812	-----	.0015432	.0028774	.0034213	-----	.0010986	.0017960	.0018958
A BbDDee---	-----	.0019531	.0043945	.0059812	-----	.0015432	.0028774	.0034213	-----	.0010986	.0017960	.0018958
A BbddEe---	-----	.0019531	.0043945	.0059812	-----	.0015432	.0028774	.0034213	-----	.0010986	.0017960	.0018958
A bbDDEe---	-----	.0019531	.0043945	.0059812	-----	.0015432	.0028774	.0034213	-----	.0010986	.0017960	.0018958
A bbDdEE---	-----	.0019531	.0043945	.0059812	-----	.0015432	.0028774	.0034213	-----	.0010986	.0017960	.0018958
a BBDDEE---	-----	.0048828	.0057678	.0051401	-----	.0023148	.0016316	.0010356	-----	.0012817	.0006534	.0003277
A BbDdEe---	.1250000	.0546875	.0371094	.0327126	.1111111	.0416666	.0244316	.0189655	.0937500	.0307617	.0157900	.0108102
a BBDDEe---	-----	.0058594	.0069580	.0075297	-----	.0030864	.0029095	.0025141	-----	.0018311	.0014484	.0010456
a BBDdEE---	-----	.0058594	.0069580	.0075297	-----	.0030864	.0029095	.0025141	-----	.0018311	.0014484	.0010456
a BbDDEE---	-----	.0058594	.0069580	.0075297	-----	.0030864	.0029095	.0025141	-----	.0018311	.0014484	.0010456
A BBddee---	-----	.0009766	.0019226	.0027103	-----	.0007716	.0017441	.0025230	-----	.0005493	.0013036	.0018252
A bbDDee---	-----	.0009766	.0019226	.0027103	-----	.0007716	.0017441	.0025230	-----	.0005493	.0013036	.0018252
A bbddEE---	-----	.0009766	.0019226	.0027103	-----	.0007716	.0017441	.0025230	-----	.0005493	.0013036	.0018252
A BbDdee---	-----	.0078125	.0120850	.0138311	-----	.0092593	.0123775	.0134673	-----	.0087891	.0101581	.0101845
A BbddEe---	-----	.0078125	.0120850	.0138311	-----	.0092593	.0123775	.0134673	-----	.0087891	.0101581	.0101845
A bbDdEe---	-----	.0078125	.0120850	.0138311	-----	.0092593	.0123775	.0134673	-----	.0087891	.0101581	.0101845
a BBDDee---	-----	.0009766	.0019226	.0027103	-----	.0007716	.0012458	.0015138	-----	.0005493	.0007821	.0008296
a BBddEE---	-----	.0009766	.0019226	.0027103	-----	.0007716	.0012458	.0015138	-----	.0005493	.0007821	.0008296
a bbDDEE---	-----	.0009766	.0019226	.0027103	-----	.0007716	.0012458	.0015138	-----	.0005493	.0007821	.0008296
a BBDdEe---	-----	.0078125	.0120850	.0138309	-----	.0046296	.0071050	.0075737	-----	.0029297	.0042272	.0041194
a BbDDEe---	-----	.0078125	.0120850	.0138309	-----	.0046296	.0071050	.0075737	-----	.0029297	.0042272	.0041194
a BbDdEE---	-----	.0078125	.0120850	.0138309	-----	.0046296	.0071050	.0075737	-----	.0029297	.0042272	.0041194
A Bbddee---	-----	.0058594	.0069580	.0075299	-----	.0077160	.0102076	.0121419	-----	.0076904	.0102932	.0121922
A bbDdee---	-----	.0058594	.0069580	.0075299	-----	.0077160	.0102076	.0121419	-----	.0076904	.0102932	.0121922
A bbddEe---	-----	.0058594	.0069580	.0075299	-----	.0077160	.0102076	.0121419	-----	.0076904	.0102932	.0121922
a BBDdee---	-----	.0019531	.0043945	.0059811	-----	.0015432	.0038740	.0054396	-----	.0010986	.0028389	.0038869
a BBddEe---	-----	.0019531	.0043945	.0059811	-----	.0015432	.0038740	.0054396	-----	.0010986	.0028389	.0038869
a BbDDee---	-----	.0019531	.0043945	.0059811	-----	.0015432	.0038740	.0054396	-----	.0010986	.0028389	.0038869
a BbddEE---	-----	.0019531	.0043945	.0059811	-----	.0015432	.0038740	.0054396	-----	.0010986	.0028389	.0038869
a bbDDEe---	-----	.0019531	.0043945	.0059811	-----	.0015432	.0038740	.0054396	-----	.0010986	.0028389	.0038869
a bbDdEE---	-----	.0019531	.0043945	.0059811	-----	.0015432	.0038740	.0054396	-----	.0010986	.0028389	.0038869
a BbDdEe---	.1250000	.0546875	.0371094	.0327125	.1111111	.0509258	.0349742	.0307520	.0937500	.0424805	.0276518	.0229389
a BBddee---	-----	.0009766	.0024719	.0032711	-----	.0007716	.0029819	.0048613	-----	.0005493	.0025588	.0045359
a bbDDee---	-----	.0009766	.0024719	.0032711	-----	.0007716	.0029819	.0048613	-----	.0005493	.0025588	.0045359
a bbddEE---	-----	.0009766	.0024719	.0032711	-----	.0007716	.0029819	.0048613	-----	.0005493	.0025588	.0045359
A bbddee---	-----	.0048828	.0057678	.0051403	-----	.0069444	.0123537	.0140288	-----	.0071411	.0015182	.0190272
a BbDdee---	-----	.0156250	.0172119	.0169285	-----	.0216050	.0250430	.0268719	-----	.0219727	.0250669	.0267941
a BbddEe---	-----	**.0156250**	**.0172119**	.0169285	-----	.0216050	.0250430	.0268719	-----	.0219727	.0250669	.0267941
a bbDdEe---	-----	.0156250	.0172119	.0169285	-----	.0216050	.0250430	.0268719	-----	.0219727	.0250669	.0267941
a Bbddee---	-----	.0136719	.0135498	.0112681	-----	.0200617	.0289505	.0304769	-----	.0208740	.0355403	.0411741
a bbDdee---	-----	.0136719	.0135498	.0112681	-----	.0200617	.0289505	.0304769	-----	.0208740	.0355403	.0411741
a bbddEe---	-----	.0136719	.0135498	.0112681	-----	.0200617	.0289505	.0304769	-----	.0208740	.0355403	.0411741
a bbddee---	.1250000	.0429453	.0181580	.0096300	.2222222	.1180555	.0687608	.0474657	.2812500	.1785278	.1207906	.0929048

Table 34.--Relative frequencies of female genotypes when native population (3 autosomal genes BBDDEE plus 1 sex-linked gene AA; female is heterogametic) is overflooded once in parental generation by X release insects (aabbddee, a-bbddee) for every native insect--Continued

Genotype	X = 4				X = 5				X = 10			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
A BBDDEE	0.0200000	0.0024000	0.0003971	0.0000947	0.0138889	0.0014106	0.0001999	0.0000412	0.0041322	0.0002689	0.0000242	0.0000032
A BBDDEe	---	-----	.002000	.0007638	.0003060	-----	.0013262	.0004358	.0001525	-----	.0003415	.0000739	.0000171
A BBDdEE	---	-----	.002000	.0007638	.0003060	-----	.0013262	.0004358	.0001525	-----	.0003415	.0000739	.0000171
A BbDDEE	---	-----	.002000	.0007638	.0003060	-----	.0013262	.0004358	.0001525	-----	.0003415	.0000739	.0000171
A BBDDee	---	-----	.0004000	.0003591	.0002442	-----	.0003014	.0002323	.0001394	-----	.0001067	.0000554	.0000228
A BBddEE	---	-----	.0004000	.0003591	.0002442	-----	.0003014	.0002323	.0001394	-----	.0001067	.0000554	.0000228
A bbDDEE	---	-----	.0004000	.0003591	.0002442	-----	.0003014	.0002323	.0001394	-----	.0001067	.0000554	.0000228
A BBDdEe	---	-----	.0028000	.0020064	.0012131	-----	.0019290	.0012609	.0006895	-----	.0005549	.0002755	.0001101
A BbDDEe	---	-----	.0028000	.0020064	.0012131	-----	.0019290	.0012609	.0006895	-----	.0005549	.0002755	.0001101
A BbDdEE	---	-----	.0028000	.0020064	.0012131	-----	.0019290	.0012609	.0006895	-----	.0005549	.0002755	.0001101
A BBDdee	---	-----	.0008000	.0011898	.0011407	-----	.0006028	.0008351	.0007403	-----	.0002134	.0002444	.0001699
A BBddEe	---	-----	.0008000	.0011898	.0011407	-----	.0006028	.0008351	.0007403	-----	.0002134	.0002444	.0001699
A BbDDee	---	-----	.0008000	.0011898	.0011407	-----	.0006028	.0008351	.0007403	-----	.0002134	.0002444	.0001699
A BbddEE	---	-----	.0008000	.0011898	.0011407	-----	.0006028	.0008351	.0007403	-----	.0002134	.0002444	.0001699
A bbDDEe	---	-----	.0008000	.0011898	.0011407	-----	.0006028	.0008351	.0007403	-----	.0002134	.0002444	.0001699
A bbDdEE	---	-----	.0008000	.0011898	.0011407	-----	.0006028	.0008351	.0007403	-----	.0002134	.0002444	.0001699
a BBDDEE	---	-----	.0008000	.0003249	.0001364	-----	.0005425	.0001859	.0000677	-----	.0001494	.0000321	.0000075
A BbDdEe	.0800000	.0236000	.0108687	.0066964	.0694444	.0188078	.0079216	.0044681	.0413223	.0086657	.0027321	.0011515
a BBDDEe	---	-----	.0012000	.0008322	.0005217	-----	.0008439	.0005287	.0002959	-----	.0002561	.0001025	.0000475
a BBDdEE	---	-----	.0012000	.0008322	.0005217	-----	.0008439	.0005287	.0002959	-----	.0002561	.0001025	.0000475
a BbDDEE	---	-----	.0012000	.0008322	.0005217	-----	.0008439	.0005287	.0002959	-----	.0002561	.0001025	.0000475
A BBddee	---	-----	.0004000	.0009711	.0013099	-----	.0003014	.0007410	.0009663	-----	.0001067	.0002677	.0003124
A bbDDee	---	-----	.0004000	.0009711	.0013099	-----	.0003014	.0007410	.0009663	-----	.0001067	.0002677	.0003124
A bbddEE	---	-----	.0004000	.0009711	.0013099	-----	.0003014	.0007410	.0009663	-----	.0001067	.0002677	.0003124
A BbDdee	---	-----	.0080000	.0082042	.0076196	-----	.0072338	.0067313	.0058431	-----	.0046957	.0032539	.0022260
A BbddEe	---	-----	.0080000	.0082042	.0076196	-----	.0072338	.0067313	.0058431	-----	.0046957	.0032539	.0022260
A bbDdEe	---	-----	.0080000	.0082042	.0076196	-----	.0072338	.0067313	.0058431	-----	.0046957	.0032539	.0022260
a BBDDee	---	-----	.0004000	.0005229	.0004969	-----	.0003014	.0003705	.0003221	-----	.0001067	.0001123	.0000748
a BBddEE	---	-----	.0004000	.0005229	.0004969	-----	.0003014	.0003705	.0003221	-----	.0001067	.0001123	.0000748
a bbDDEE	---	-----	.0004000	.0005229	.0004969	-----	.0003014	.0003706	.0003221	-----	.0001067	.0001123	.0000748
a BBDdEe	---	-----	.0020000	.0027215	.0024511	-----	.0014468	.0018737	.0015784	-----	.0004696	.0005233	.0003548
a BbDDEe	---	-----	.0020000	.0027215	.0024511	-----	.0014468	.0018737	.0015784	-----	.0004696	.0005233	.0003548
a BbDdEE	---	-----	.0020000	.0027215	.0024511	-----	.0014468	.0018737	.0015784	-----	.0004696	.0005233	.0003548
A Bbddee	---	-----	.0072000	.0095657	.0110491	-----	.0066310	.0087093	.0097675	-----	.0044823	.0056117	.0055583
A bbDdee	---	-----	.0072000	.0095657	.0110491	-----	.0066310	.0087093	.0097675	-----	.0044823	.0056117	.0055583
A bbddEe	---	-----	.0072000	.0095657	.0110491	-----	.0066310	.0087093	.0097675	-----	.0044823	.0056117	.0055583
a BBDdee	---	-----	.0008000	.0020862	.0027668	-----	.0006028	.0015761	.0020287	-----	.0002134	.0005553	.0006451
a BBddEe	---	-----	.0008000	.0020862	.0027668	-----	.0006028	.0015761	.0020287	-----	.0002134	.0005553	.0006451
a BbDDee	---	-----	.0008000	.0020862	.0027668	-----	.0006028	.0015761	.0020287	-----	.0002134	.0005553	.0006451
a BbddEE	---	-----	.0008000	.0020862	.0027668	-----	.0006028	.0015761	.0020287	-----	.0002134	.0005553	.0006451
a bbDDEe	---	-----	.0008000	.0020862	.0027668	-----	.0006028	.0015761	.0020287	-----	.0002134	.0005553	.0006451
a bbDdEE	---	-----	.0008000	.0020862	.0027668	-----	.0006028	.0015761	.0020287	-----	.0002134	.0005553	.0006451
a BbDdEe	.0800000	.0356000	.0218332	.0170321	.0694444	.0303819	.0176361	.0129964	.0413223	.0171180	.0081931	.0048935
a BBddee	---	-----	.0004000	.0020709	.0038411	-----	.0003014	.0016703	.0031874	-----	.0001067	.0006858	.0013895
a bbDDee	---	-----	.0004000	.0020709	.0038411	-----	.0003014	.0016703	.0031874	-----	.0001067	.0006858	.0013895
a bbddEE	---	-----	.0004000	.0020709	.0038411	-----	.0003014	.0016703	.0031874	-----	.0001067	.0006858	.0013895
A bbddee	---	-----	.0068000	.0159830	.0211357	-----	.0063296	.0158678	.0217050	-----	.0043756	.0126171	.0185395
a BbDdee	---	-----	.0208000	.0231628	.0241830	-----	.0192901	.0209976	.0213200	-----	.0132334	.0133664	.0120520
a BbddEe	---	-----	.0208000	.0231628	.0241830	-----	.0192901	.0209976	.0213200	-----	.0132334	.0133664	.0120520
a bbDdEe	---	-----	.0208000	.0231628	.0241830	-----	.0192901	.0209976	.0213200	-----	.0132334	.0133664	.0120520
a Bbddee	---	-----	.0200000	.0373897	.0456376	-----	.0186873	.0371042	.0468022	-----	.0130199	.0294741	.0398582
a bbDdee	---	-----	.0200000	.0373897	.0456376	-----	.0186873	.0371042	.0468022	-----	.0130199	.0294741	.0398582
a bbddEe	---	-----	.0200000	.0373897	.0456376	-----	.0186873	.0371042	.0468022	-----	.0130199	.0294741	.0398582
a bbddee	.3200000	.2243999	.1652187	.1348273	.3472222	.2595120	.2017483	.1709067	.4132231	.3544198	.3101384	.2844399

Table 34.--Relative frequencies of female genotypes when native population (3 autosomal genes BBDDEE plus 1 sex-linked gene AA; female is heterogametic) is overflooded once in parental generation by X release insects (aabbddee, a-bbddee) for every native insect--Continued

Genotype	X = 20				X = 50				X = 100			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
A BBDDEE	0.0011338	0.0000540	0.0000033	0.0000003	0.0001922	0.0000072	0.0000003	0.0000000	0.0000490	0.0000017	0.0000001	0.0000000
A BBDDEe	-----	.0000836	.0000131	.0000021	-----	.0000129	.0000015	.0000002	-----	.0000032	.0000003	.0000000
A BBDdEE	-----	.0000836	.0000131	.0000021	-----	.0000129	.0000015	.0000002	-----	.0000032	.0000003	.0000000
A BbDDEE	-----	.0000836	.0000131	.0000021	-----	.0000129	.0000015	.0000002	-----	.0000032	.0000003	.0000000
A BBDDee	-----	.0000321	.0000013	.0000038	-----	.0000058	.0000019	.0000004	-----	.0000015	.0000005	.0000001
A BBddEE	-----	.0000321	.0000013	.0000038	-----	.0000058	.0000019	.0000004	-----	.0000015	.0000005	.0000001
A bbDDEE	-----	.0000321	.0000013	.0000038	-----	.0000058	.0000019	.0000004	-----	.0000015	.0000005	.0000001
A BBDdEe	-----	.0001478	.0000588	.0000177	-----	.0000245	.0000081	.0000018	-----	.0000062	.0000019	.0000004
A BbDDEe	-----	.0001478	.0000588	.0000177	-----	.0000245	.0000081	.0000018	-----	.0000062	.0000019	.0000004
A BbDdEE	-----	.0001478	.0000588	.0000177	-----	.0000245	.0000081	.0000018	-----	.0000062	.0000019	.0000004
A BBDdEE	-----	.0000643	.0000645	.0000364	-----	.0000115	.0000105	.0000049	-----	.0000030	.0000026	.0000011
A BBddEe	-----	.0000643	.0000645	.0000364	-----	.0000115	.0000105	.0000049	-----	.0000030	.0000026	.0000011
A BbDDee	-----	.0000643	.0000645	.0000364	-----	.0000115	.0000105	.0000049	-----	.0000030	.0000026	.0000011
A BbddEE	-----	.0000643	.0000645	.0000364	-----	.0000115	.0000105	.0000049	-----	.0000030	.0000026	.0000011
A bbDDEe	-----	.0000643	.0000645	.0000364	-----	.0000115	.0000105	.0000049	-----	.0000030	.0000026	.0000011
A bbDdEE	-----	.0000643	.0000645	.0000364	-----	.0000115	.0000105	.0000049	-----	.0000030	.0000026	.0000011
a BBDDEE	-----	.0000386	.0000059	.0000009	-----	.0000062	.0000007	.0000001	-----	.0000016	.0000002	.0000000
A BbDdEe	.0226757	.0038757	.0009246	.0002917	.0096117	.0013872	.0002459	.0000550	.0049015	.0006609	.0001009	.0000183
a BBDDEe	-----	.0000707	.0000269	.0000078	-----	.0000120	.0000039	.0000009	-----	.0000031	.0000009	.0000002
a BBDdEE	-----	.0000707	.0000269	.0000078	-----	.0000120	.0000039	.0000009	-----	.0000031	.0000009	.0000002
a BbDDEE	-----	.0000707	.0000269	.0000078	-----	.0000120	.0000039	.0000009	-----	.0000031	.0000009	.0000002
A BBddee	-----	.0000321	.0000811	.0000863	-----	.0000058	.0000146	.0000144	-----	.0000015	.0000038	.0000036
A BBDDee	-----	.0000321	.0000811	.0000863	-----	.0000058	.0000146	.0000144	-----	.0000015	.000038	.0000036
A bbddEE	-----	.0000321	.0000811	.0000863	-----	.0000058	.0000146	.0000144	-----	.0000015	.0000038	.0000036
A BbDdee	-----	.0026995	.0014723	.0007872	-----	.0011779	.0005254	.0002136	-----	.0006066	.0002494	.0000880
A BbddEe	-----	.0026995	.0014723	.0007872	-----	.0011779	.0005254	.0002136	-----	.0006066	.0002494	.0000880
A bbDdEe	-----	.0026995	.0014723	.0007872	-----	.0011779	.0005254	.0002136	-----	.0006066	.0002494	.0000880
a BBDDee	-----	.0000321	.0000306	.0000165	-----	.0000058	.0000051	.0000023	-----	.0000015	.0000013	.0000006
a BBddEE	-----	.0000321	.0000306	.0000165	-----	.0000058	.0000051	.0000023	-----	.0000015	.0000013	.0000006
a bbDDEE	-----	.0000321	.0000306	.0000165	-----	.0000058	.0000051	.0000023	-----	.0000015	.0000013	.0000006
a BBDdEe	-----	.0001350	.0001340	.0000749	-----	.0000236	.0000214	.0000100	-----	.0000061	.0000053	.0000023
a BbDDEe	-----	.0001350	.0001340	.0000749	-----	.0000236	.0000214	.0000100	-----	.0000061	.0000053	.0000023
a BbDdEE	-----	.0001350	.0001340	.0000749	-----	.0000236	.0000214	.0000100	-----	.0000061	.0000053	.0000023
A Bbddee	-----	.0026352	.0031598	.0027475	-----	.0011664	.0013501	.0010352	-----	.0006036	.0006892	.0005002
A bbDdee	-----	.0026352	.0031598	.0027475	-----	.0011664	.0013501	.0010352	-----	.0006036	.0006892	.0005002
A bbddEe	-----	.0026352	.0031598	.0027475	-----	.0011664	.0013501	.0010352	-----	.0006036	.0006892	.0005002
a BBDdee	-----	.0000643	.0001656	.0001760	-----	.0000115	.0000295	.0000291	-----	.0000030	.0000076	.0000073
a BBddEe	-----	.0000643	.0001656	.0001760	-----	.0000115	.0000295	.0000291	-----	.0000030	.0000076	.0000073
a BbDDee	-----	.0000643	.0001656	.0001760	-----	.0000115	.0000295	.0000291	-----	.0000030	.0000076	.0000073
a BbddEE	-----	.0000643	.0001656	.0001760	-----	.0000115	.0000295	.0000291	-----	.0000030	.0000076	.0000073
a bbDDEe	-----	.0000643	.0001656	.0001760	-----	.0000115	.0000295	.0000291	-----	.0000030	.0000076	.0000073
a bbDdEE	-----	.0000643	.0001656	.0001760	-----	.0000115	.0000295	.0000291	-----	.0000030	.0000076	.0000073
a BbDdEe	.0226757	.0090047	.0036011	.0017162	.0096117	.0036958	.0012540	.0004622	.0049015	.0018620	.0005889	.0001897
a BBddee	-----	.0000321	.0002239	.0004683	-----	.0000058	.0000423	.0000903	-----	.0015015	.0000112	.0000241
a bbDDee	-----	.0000321	.0002239	.0004683	-----	.0000058	.0000423	.0000903	-----	.0015015	.0000112	.0000241
a bbddEE	-----	.0000321	.0002239	.0004683	-----	.0000058	.0000423	.0000903	-----	.0015015	.0000112	.0000241
A bbddee	-----	.0026031	.0081011	.0123646	-----	.0011606	.0037896	.0059220	-----	.0018078	.0016125	.0010737
a BbDdee	-----	.0078414	.0074605	.0059301	-----	.0034875	.0031667	.0022260	-----	.0018078	.0016125	.0010737
a BbddEe	-----	.0078414	.0074605	.0059301	-----	.0034875	.0031667	.0022260	-----	.0018078	.0016125	.0010737
a bbDdEe	-----	.0078414	.0074605	.0059301	-----	.0034875	.0031667	.0022260	-----	.0018078	.0016125	.0010737
a Bbddee	-----	.0077771	.0189138	.0265400	-----	.0034760	.0088446	.0126985	-----	.0018048	.0046640	.0067485
a bbDdee	-----	.0077771	.0189138	.0265400	-----	.0034760	.0088446	.0126985	-----	.0018048	.0046640	.0067485
a bbddEe	-----	.0077771	.0189138	.0265400	-----	.0034760	.0088446	.0126985	-----	.0018048	.0046640	.0067485
a bbddee	.4535145	.4190957	.3912190	.3743027	.4805842	.4653922	.4525121	.4444750	.4901480	.4822930	.4755288	.4712676

Table 34.--Relative frequencies of female genotypes when native population (3 autosomal genes BBDDEE plus 1 sex-linked gene AA; female is heterogametic) is overflooded once in parental generation by X release insects (aabbddee, a-bbddee) for every native insect--Continued

	X = 200				X = 500				X = 1,000			
Genotype	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
A BBDDEE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.0000005	0.0000000	0.0000000	0.0000000
A BBDdEe	---	-----	.0000008	.0000001	.0000000	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000
A BBDdEE	---	-----	.0000008	.0000001	.0000000	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000
A BbDDEE	---	-----	.0000008	.0000001	.0000000	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000
A BBDDee	---	-----	.0000004	.0000001	.0000000	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000
A BBddEE	---	-----	.0000004	.0000001	.0000000	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000
A bbDDEE	---	-----	.0000004	.0000001	.0000000	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000
A BBDdEe	---	-----	.0000016	.0000005	.0000001	-----	.0000002	.0000001	.0000000	-----	.0000001	.0000000	.0000000
A BbDDEe	---	-----	.0000016	.0000005	.0000001	-----	.0000002	.0000001	.0000000	-----	.0000001	.0000000	.0000000
A BbDdEE	---	-----	.0000016	.0000005	.0000001	-----	.0000002	.0000001	.0000000	-----	.0000001	.0000000	.0000000
A BBDdEE	---	-----	.0000008	.0000007	.0000003	-----	.0000001	.0000001	.0000000	-----	.0000000	.0000000	.0000000
A BBddEe	---	-----	.0000008	.0000007	.0000003	-----	.0000001	.0000001	.0000000	-----	.0000000	.0000000	.0000000
A BbDDee	---	-----	.0000008	.0000007	.0000003	-----	.0000001	.0000001	.0000000	-----	.0000000	.0000000	.0000000
A BbddEE	---	-----	.0000008	.0000007	.0000003	-----	.0000001	.0000001	.0000000	-----	.0000000	.0000000	.0000000
A bbDDEe	---	-----	.0000008	.0000007	.0000003	-----	.0000001	.0000001	.0000000	-----	.0000000	.0000000	.0000000
A bbDdEE	---	-----	.0000008	.0000007	.0000003	-----	.0000001	.0000001	.0000000	-----	.0000000	.0000000	.0000000
a BBDDEE	---	-----	.0000004	.0000000	.0000000	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000
A BbDdEe	---	.0024752	.0003217	.0000448	.0000070	.0009960	.0001265	.0000165	.0000023	.0004990	.0000629	.0000080	.0000011
a BBDDEe	---	-----	.0000008	.0000002	.0000000	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000
a BBDdEE	---	-----	.0000008	.0000002	.0000000	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000
a BbDDEE	---	-----	.0000008	.0000002	.0000000	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000
A BBddEe	---	-----	.0000004	.0000010	.0000009	-----	.0000001	.0000002	.0000001	-----	.0000000	.0000000	.0000000
A BBDDee	---	-----	.0000004	.0000010	.0000009	-----	.0000001	.0000002	.0000001	-----	.0000000	.0000000	.0000000
A bbddEE	---	-----	.0000004	.0000010	.0000009	-----	.0000001	.0000002	.0000001	-----	.0000000	.0000000	.0000000
A BbDdEe	---	-----	.0003079	.0001210	.0000392	-----	.0001243	.0000475	.0000145	-----	.0000623	.0000236	.0000070
A BbddEe	---	-----	.0003079	.0001210	.0000392	-----	.0001243	.0000475	.0000145	-----	.0000623	.0000236	.0000070
A bbDdEe	---	-----	.0003079	.0001210	.0000392	-----	.0001243	.0000475	.0000145	-----	.0000623	.0000236	.0000070
a BBDDee	---	-----	.0000004	.0000003	.0000001	-----	.0000001	.0000001	.0000000	-----	.0000000	.0000000	.0000000
a BBddEE	---	-----	.0000004	.0000003	.0000001	-----	.0000001	.0000001	.0000000	-----	.0000000	.0000000	.0000000
a bbDDEE	---	-----	.0000004	.0000003	.0000001	-----	.0000001	.0000001	.0000000	-----	.0000000	.0000000	.0000000
a BBDdEe	---	-----	.0000015	.0000013	.0000006	-----	.0000002	.0000002	.0000001	-----	.0000001	.0000001	.0000000
a BbDDEe	---	-----	.0000015	.0000013	.0000006	-----	.0000002	.0000002	.0000001	-----	.0000001	.0000001	.0000000
a BbDdEE	---	-----	.0000015	.0000013	.0000006	-----	.0000002	.0000002	.0000001	-----	.0000001	.0000001	.0000000
A Bbddee	---	-----	.0003071	.0003481	.0002449	-----	.0001241	.0001401	.0000966	-----	.0000623	.0000702	.0000481
A bbDdee	---	-----	.0003071	.0003481	.0002449	-----	.0001241	.0001401	.0000966	-----	.0000623	.0000702	.0000481
A bbddEe	---	-----	.0003071	.0003481	.0002449	-----	.0001241	.0001401	.0000966	-----	.0000623	.0000702	.0000481
a BBDdee	---	-----	.0000008	.0000019	.0000018	-----	.0000001	.0000003	.0000003	-----	.0000000	.0000001	.0000001
a BBddEe	---	-----	.0000008	.0000019	.0000018	-----	.0000001	.0000003	.0000003	-----	.0000000	.0000001	.0000001
a BbDDee	---	-----	.0000008	.0000019	.0000018	-----	.0000001	.0000003	.0000003	-----	.0000000	.0000001	.0000001
a BbddEE	---	-----	.0000008	.0000019	.0000018	-----	.0000001	.0000003	.0000003	-----	.0000000	.0000001	.0000001
a bbDDEe	---	-----	.0000008	.0000019	.0000018	-----	.0000001	.0000003	.0000003	-----	.0000000	.0000001	.0000001
a bbDdEE	---	-----	.0000008	.0000019	.0000018	-----	.0000001	.0000003	.0000003	-----	.0000000	.0000001	.0000001
a BbDdEe	---	.0024752	.0009343	.0002842	.0000842	.0009960	.0003745	.0001111	.0000311	.0004990	.0001874	.0000551	.0000151
a BBddEe	---	-----	.0000004	.0000029	.0000062	-----	.0000001	.0000005	.0000010	-----	.0000000	.0000001	.0000003
a bbDDee	---	-----	.0000004	.0000029	.0000062	-----	.0000001	.0000005	.0000010	-----	.0000000	.0000001	.0000003
a bbddEE	---	-----	.0000004	.0000029	.0000062	-----	.0000001	.0000005	.0000010	-----	.0000000	.0000001	.0000003
A bbddee	---	-----	.0003067	.001027	.0016235	-----	.0001241	.0004173	.0006616	-----	.0000623	.0002098	.0003329
a BbDdee	---	-----	.0009205	.0008133	.0005254	-----	.0003723	.0003270	.0002072	-----	.0001868	.0001638	.0001031
a BbddEe	---	-----	.0009205	.0008133	.0005254	-----	.0003723	.0003270	.0002072	-----	.0001868	.0001638	.0001031
a bbDdEe	---	-----	.0009205	.0008133	.0005254	-----	.0003723	.0003270	.0002072	-----	.0001868	.0001638	.0001031
a Bbddee	---	-----	.0009197	.0023954	.0034796	-----	.0003721	.0007938	.0014179	-----	.0001868	.0004895	.0007133
a bbDdee	---	-----	.0009197	.0023954	.0034796	-----	.0003721	.0009738	.0014179	-----	.0001868	.0004895	.0007133
a bbddEe	---	-----	.0009197	.0023954	.0034796	-----	.0003721	.0009738	.0014179	-----	.0001868	.0004895	.0007133
a bbddee	---	.4950372	.4910426	.4875758	.4853811	.4980059	.4963919	.4949840	.4940906	.4990014	.4981916	.4974845	.4970345

Table 35.--Relative frequencies of genotypes when native population (aa) is overflooded in parental, F_1, F_2, and F_3 generations by X release insects for every native insect

Genotype	F_1	F_2	F_3	F_4
		X = 1		
aa -----	0.2500000	0.0625000	0.0156250	0.0039063
Aa -----	.5000000	.3750000	.2187500	.1171875
AA -----	.2500000	.5625000	.7656250	.8789063
		X = 2		
aa -----	.1111111	.0204082	.0044444	.0010406
Aa -----	.4444444	.2448981	.1244445	.0643498
AA -----	.4444444	.7346942	.8711112	.9365246
		X = 3		
aa -----	.0625000	.0100000	.0020661	.0004726
Aa -----	.3750000	.1800000	.0867769	.0425331
AA -----	.5625000	.8100000	.9111573	.9569945
		X = 4		
aa -----	.0400000	.0059172	.0011891	.0002687
Aa -----	.3200000	.1420119	.0665874	.0322494
AA -----	.6400000	.8520712	.9322236	.9674819
		X = 5		
aa -----	.0277778	.0039062	.0007716	.0001731
Aa -----	.2777777	.1171875	.0540123	.0259695
AA -----	.6944444	.8789064	.9452161	.9738574
		X = 10		
aa -----	.0082645	.0010406	.0001984	.0000439
Aa -----	.1652892	.0643495	.0277723	.0131573
AA -----	.8264462	.9365245	.9720310	.9867996
		X = 50		
aa -----	.0003845	.0000439	.0000081	.0000018
Aa -----	.0384467	.0131573	.0056818	.0026596
AA -----	.9611687	.9867991	.9943102	.9973388
		X = 100		
aa -----	.0000980	.0000110	.0000020	.0000004
Aa -----	.0196059	.0066224	.0028490	.0013316
AA -----	.9802959	.9933666	.9971490	.9986680
		X = 200		
aa -----	.0000248	.0000028	.0000005	.0000001
Aa -----	.0099007	.0033223	.0014265	.0006662
AA -----	.9900745	.9966766	.9985736	.9993343
		X = 1,000		
aa -----	.0000010	.0000001	.0000000	.0000000
Aa -----	.0019960	.0006662	.0002856	.0001333
AA -----	.9980029	.9993339	.9997144	.9998668

Table 36.--Relative frequencies of genotypes when native population (AABB) is overflooded in parental, F_1, F_2, and F_3 generations by X release insects (aabb) for every native insect

Generation	AABB	AaBB	AABb	AaBb	aaBB	AAbb	aaBb	Aabb	aabb
				X = 1					
F_1---	0.2500000	-----	-----	0.5000000	-----	-----	-----	-----	0.2500000
F_2---	.0351563	0.0234375	0.0234375	.2656250	0.0039063	0.0039063	0.0859375	0.0859375	.4726563
F_3---	.0039063	.0078125	.0078125	.1093750	.0039063	.0039063	.1015625	.1015625	.6601563
F_4---	.0003815	.0016785	.0016785	.0386353	.0018463	.0018463	.0768738	.0768738	.8001862
				X = 2					
F_1---	.1111111	-----	-----	[illegible]	-----	-----	-----	-----	.4444444
F_2---	.0090703	.0090703	.0090703	.1587302	.0022676	.0022676	.0770975	.0770975	.6553288
F_3---	.0007281	.0021416	.0021416	.0513782	.0015747	.0015747	.0709247	.0709247	.7986117
F_4---	.0000578	.0003749	.0003749	.0155576	.0006078	.0006078	.0465025	.0465025	.8894141
				X = 3					
F_1---	.0625000	-----	-----	.3750000	-----	-----	-----	-----	.5625000
F_2---	.0039063	.0046875	.0046875	.1106250	.0014063	.0014063	.0646875	.0646875	.7439063
F_3---	.0002715	.0009549	.0009549	.0321810	.0008397	.0008397	.0536409	.0536409	.8566765
F_4---	.0000197	.0001535	.0001535	.0091212	.0002995	.0002995	.0332584	.0332584	.9234365
				X = 4					
F_1---	.0400000	-----	-----	.3200000	-----	-----	-----	-----	.6400000
F_2---	.0021302	.0028402	.0028402	.0842604	.0009467	.0009467	.0549112	.0549112	.7962130
F_3---	.0001362	.0005325	.0005325	.0230455	.0005204	.0005204	.0430094	.0430094	.8886938
F_4---	.0000093	.0000815	.0000815	.0062878	.0001779	.0001779	.0258801	.0258801	.9414239
				X = 5					
F_1---	.0277777	-----	-----	.2777777	-----	-----	-----	-----	.6944444
F_2---	.0013292	.0018989	.0018989	.0678168	.0006782	.0006782	.0474718	.0474718	.8307563
F_3---	.0000805	.0003374	.0003374	.0178115	.0003537	.0003537	.0358634	.0358634	.9089989
F_4---	.0000053	.0000501	.0000501	.0047391	.0001177	.0001177	.0211804	.0211804	.9525592
				X = 10					
F_1---	.0082645	-----	-----	.1652893	-----	-----	-----	-----	.8264463
F_2---	.0003096	.0005160	.0005160	.0339694	.0002150	.0002150	.0279495	.0279495	.9083600
F_3---	.0000166	.0000815	.0000815	.0081413	.0001003	.0001003	.0195494	.0195494	.9523796
F_4---	.0000010	.0000113	.0000113	.0020448	.0000316	.0000316	.0111012	.0111012	.9756660
				X = 50					
F_1---	.0005845	-----	-----	.0384468	-----	-----	-----	-----	.9611688
F_2---	.0000114	.0000219	.0000219	.0067068	.0000105	.0000105	.0064286	.0064286	.9803597
F_3---	.0000005	.0000031	.0000031	.0014729	.0000045	.0000045	.0042057	.0042057	.9900999
F_4---	.0000000	.0000004	.0000004	.0003494	.0000013	.0000013	.0023097	.0023097	.9950276
				X = 100					
F_1---	.0000980	-----	-----	.0196059	-----	-----	-----	-----	.9802960
F_2---	.0000028	.0000055	.0000055	.0033439	.0000027	.0000027	.0032730	.0032730	.9900907
F_3---	.0000001	.0000008	.0000008	.0007255	.0000011	.0000011	.0021227	.0021227	.9950251
F_4---	.0000000	.0000001	.0000001	.0001707	.0000003	.0000003	.0011607	.0011607	.9975069
				X = 200					
F_1---	.0000245	-----	-----	.0099007	-----	-----	-----	-----	.9900745
F_2---	.0000007	.0000014	.0000014	.0016694	.0000007	.0000007	.0016515	.0016515	.9950228
F_3---	.0000000	.0000002	.0000002	.0003600	.0000003	.0000003	.0010664	.0010664	.9975063
F_4---	.0000000	.0000000	.0000000	.0000844	.0000001	.0000001	.0005818	.0005818	.9987517
				X = 1,000					
F_1---	.0000010	-----	-----	.0019960	-----	-----	-----	-----	.9980030
F_2---	.0000000	.0000000	.0000000	.0003334	.0000000	.0000000	.0003327	.0003327	.9990009
F_3---	.0000000	.0000000	.0000000	.0000715	.0000000	.0000000	.0002141	.0002141	.9995003
F_4---	.0000000	.0000000	.0000000	.0000167	.0000000	.0000000	.0001166	.0001166	.9997501

Table 37.--Relative frequencies of genotypes when native population (AABBDD) is overflooded in parental, F_1, F_2, and F_3 generations by X release insects (aabbdd) for every native insect

Genotype	X = 1				X = 2				X = 3				X = 4			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
AABBDD ---	0.2500000	0.0244141	0.0013771	0.0000573	0.1111111	0.0051020	0.0001715	0.0000050	0.0625000	0.0019141	0.0000504	0.0000012	0.0400000	0.0009467	0.0000215	0.0000005
AABBDd ---	-----	.0097656	.0018845	.0001811	-----	.0034014	.0003638	.0000240	-----	.0016406	.0001332	.0000074	-----	.0009467	.0000653	.0000033
AABbDD ---	-----	.0097656	.0018845	.0001811	-----	.0034014	.0003638	.0000240	-----	.0016406	.0001332	.0000074	-----	.0009467	.0000653	.0000033
AaBBDD ---	-----	.0097656	.0018845	.0001811	-----	.0034014	.0003638	.0000240	-----	.0016406	.0001332	.0000074	-----	.0009467	.0000653	.0000033
AABBdd ---	-----	.0009766	.0006447	.0001431	-----	.0005669	.0001929	.0000288	-----	.0003516	.0000879	.0000110	-----	.0002367	.0000494	.0000056
AAbbDD ---	-----	.0009766	.0006447	.0001431	-----	.0005669	.0001929	.0000288	-----	.0003516	.0000879	.0000110	-----	.0002367	.0000494	.0000056
aaBBDD ---	-----	.0009766	.0006447	.0001431	-----	.0005669	.0001929	.0000288	-----	.0003516	.0000879	.0000110	-----	.0002367	.0000494	.0000056
AABbDd ---	-----	.0117188	.0040436	.0007556	-----	.0045351	.0010614	.0001439	-----	.0023437	.0004542	.0000533	-----	.0014201	.0002453	.0000264
AaBBDd ---	-----	.0117188	.0040436	.0007556	-----	.0045351	.0010614	.0001439	-----	.0023437	.0004542	.0000533	-----	.0014201	.0002453	.0000264
AaBbDD ---	-----	.0117188	.0040436	.0007556	-----	.0045351	.0010614	.0001439	-----	.0023437	.0004542	.0000533	-----	.0014201	.0002453	.0000264
AABbdd ---	-----	.0019531	.0018845	.0007418	-----	.0011338	.0007165	.0002070	-----	.0007031	.0003675	.0000928	-----	.0004734	.0002219	.0000518
AAbbDd ---	-----	.0019531	.0018845	.0007418	-----	.0011338	.0007165	.0002070	-----	.0007031	.0003675	.0000928	-----	.0004734	.0002219	.0000518
AaBBdd ---	-----	.0019531	.0018845	.0007418	-----	.0011338	.0007165	.0002070	-----	.0007031	.0003675	.0000928	-----	.0004734	.0002219	.0000518
AabbDD ---	-----	.0019531	.0018845	.0007418	-----	.0011338	.0007165	.0002070	-----	.0007031	.0003675	.0000928	-----	.0004734	.0002219	.0000518
aaBBDd ---	-----	.0019531	.0018845	.0007418	-----	.0011338	.0007165	.0002070	-----	.0007031	.0003675	.0000928	-----	.0004734	.0002219	.0000518
aaBbDD ---	-----	.0019531	.0018845	.0007418	-----	.0011338	.0007165	.0002070	-----	.0007031	.0003675	.0000928	-----	.0004734	.0002219	.0000518
AaBbDd ---	.5000000	.2109375	.0632019	.0152963	.4444444	.1156462	.0248789	.0047540	.3750000	.0759375	.0139714	.0023954	.3200000	.0553846	.0092709	.0014893
AAbbdd ---	-----	.0009766	.0013771	.0009614	-----	.0005669	.0006653	.0003720	-----	.0003516	.0003843	.0001957	-----	.0002367	.0002491	.0001204
aaBBdd ---	-----	.0009766	.0013771	.0009614	-----	.0005669	.0006653	.0003720	-----	.0003516	.0003843	.0001957	-----	.0002367	.0002491	.0001204
aabbDD ---	-----	.0009766	.0013771	.0009614	-----	.0005669	.0006653	.0003720	-----	.0003516	.0003843	.0001957	-----	.0002367	.0002491	.0001204
AaBbdd ---	-----	.0429688	.0421295	.0225832	-----	.0385487	.0254377	.0106596	-----	.0323437	.0177554	.0066725	-----	.0274556	.0135291	.0047720
AabbDd ---	-----	.0429688	.0421295	.0225832	-----	.0385487	.0254377	.0106596	-----	.0323437	.0177554	.0066725	-----	.0274556	.0135291	.0047720
aaBbDd ---	-----	.0429688	.0421295	.0225832	-----	.0385487	.0254377	.0106596	-----	.0323437	.0177554	.0066725	-----	.0274556	.0135291	.0047720
Aabbdd ---	-----	.0410156	.0575485	.0535486	-----	.0374150	.0447704	.0356358	-----	.0316406	.0355180	.0264931	-----	.0269822	.0292582	.0210561
aaBbdd ---	-----	.0410156	.0575485	.0535486	-----	.0374150	.0447704	.0356358	-----	.0316406	.0355180	.0264931	-----	.0269822	.0292582	.0210561
aabbDd ---	-----	.0410156	.0575485	.0535486	-----	.0374150	.0447704	.0356358	-----	.0316406	.0355180	.0264931	-----	.0269822	.0292582	.0210561
aabbdd ---	.2500000	.4306641	.6012306	.7456756	.4444444	.6173472	.7531792	.8534113	.5652500	.7119137	.8207779	.8967518	.6400000	.7689942	.8591886	.9202501

Table 17.--Relative frequencies of genotypes when native population (AABBDD) is overflooded in parental, I_1, I_2, and I_3 generations by a release insect (aabbdd) for every native insect--Continued

Genotype	X = 5				X = 10				X = 50				X = 100			
	P_1	I_1	I_2	I_3	P_1	I_1	I_2	I_3	P_1	I_1	I_2	I_3	P_1	I_1	I_2	I_3
AABBDd---	-----	.0006104	.0000377	.0000018	-----	.0001505	.0000072	.0000003	-----	.0000057	.0000002	.0000000	-----	.0000014	.0000000	.0000000
AABbDD---	-----	.0006104	.0000377	.0000018	-----	.0001505	.0000072	.0000003	-----	.0000057	.0000002	.0000000	-----	.0000014	.0000000	.0000000
AaBBDD---	-----	.0006104	.0000377	.0000018	-----	.0001505	.0000072	.0000003	-----	.0000057	.0000002	.0000000	-----	.0000014	.0000000	.0000000
AABBdd---	-----	.0001695	.0000314	.0000033	-----	.0000537	.0000076	.0000007	-----	.0000026	.0000003	.0000000	-----	.0000007	.0000001	.0000000
AABbDd---	-----	.0001695	.0000314	.0000033	-----	.0000537	.0000076	.0000007	-----	.0000026	.0000003	.0000000	-----	.0000007	.0000001	.0000000
AaBBDd---	-----	.0001695	.0000314	.0000033	-----	.0000537	.0000076	.0000007	-----	.0000026	.0000003	.0000000	-----	.0000007	.0000001	.0000000
AABbdd---	-----	.0009494	.0001517	.0000154	-----	.0002580	.0000342	.0000030	-----	.0000110	.0000012	.0000000	-----	.0000028	.0000003	.0000000
AaBBDd---	-----	.0009494	.0001517	.0000154	-----	.0002580	.0000342	.0000030	-----	.0000110	.0000012	.0000000	-----	.0000028	.0000003	.0000000
AaBbDD---	-----	.0009494	.0001517	.0000154	-----	.0002580	.0000342	.0000030	-----	.0000110	.0000012	.0000000	-----	.0000028	.0000003	.0000000
AABbdd---	-----	.0003391	.0001480	.0000329	-----	.0001075	.0000401	.0000079	-----	.0000053	.0000017	.0000003	-----	.0000014	.0000004	.0000000
AAbbDd---	-----	.0003391	.0001480	.0000329	-----	.0001075	.0000401	.0000079	-----	.0000053	.0000017	.0000003	-----	.0000014	.0000004	.0000000
AaBBdd---	-----	.0003391	.0001480	.0000329	-----	.0001075	.0000401	.0000079	-----	.0000053	.0000017	.0000003	-----	.0000014	.0000004	.0000000
AabbDD---	-----	.0003391	.0001480	.0000329	-----	.0001075	.0000401	.0000079	-----	.0000053	.0000017	.0000003	-----	.0000014	.0000004	.0000000
aaBBDd---	-----	.0003391	.0001480	.0000329	-----	.0001075	.0000401	.0000079	-----	.0000053	.0000017	.0000003	-----	.0000014	.0000004	.0000000
aaBbDD---	-----	.0003391	.0001480	.0000329	-----	.0001075	.0000401	.0000079	-----	.0000053	.0000017	.0000003	-----	.0000014	.0000004	.0000000
AABbdd---	-----	.0001695	.0001743	.0000815	-----	.0000537	.0000526	.0000229	-----	.0000026	.0000025	.0000101	-----	.0000007	.0000006	.0000003
AAbbDd---	-----	.0001695	.0001743	.0000815	-----	.0000537	.0000526	.0000229	-----	.0000026	.0000025	.0000101	-----	.0000007	.0000006	.0000003
aaBBdd---	-----	.0001695	.0001743	.0000815	-----	.0000537	.0000526	.0000229	-----	.0000026	.0000025	.0000101	-----	.0000007	.0000006	.0000003
aabbDD---	-----	.0001695	.0001743	.0000815	-----	.0000537	.0000526	.0000229	-----	.0000026	.0000025	.0000101	-----	.0000007	.0000006	.0000003
AaBbdd---	-----	.0237359	.0108905	.0036835	-----	.0139748	.0054564	.0016764	-----	.0032143	.0010777	.0003014	-----	.0016365	.0005374	.0001483
AabbDd---	-----	.0237359	.0108905	.0036835	-----	.0139748	.0054564	.0016764	-----	.0032143	.0010777	.0003014	-----	.0016365	.0005374	.0001483
aaBbDd---	-----	.0237359	.0108905	.0036835	-----	.0139748	.0054564	.0016764	-----	.0032143	.0010777	.0003014	-----	.0016365	.0005374	.0001483
Aabbdd---	-----	.0233968	.0248247	.0174639	-----	.0138673	.0140530	.0094169	-----	.0032090	.0031263	.0020080	-----	.0016352	.0015849	.0010124
aaBbdd---	-----	.0233968	.0248247	.0174639	-----	.0138673	.0140530	.0094169	-----	.0032090	.0031263	.0020080	-----	.0016352	.0015849	.0010124
aabbDd---	-----	.0233968	.0248247	.0174639	-----	.0138673	.0140530	.0094169	-----	.0032090	.0031263	.0020080	-----	.0016352	.0015849	.0010124
aabbdd---	.6944449	.8071896	.8840010	.9450155	.8264462	.8963587	.9382761	.9662277	.9611687	.9871087	.9869732	.9930577	.9834559	.9936567	.9974417	.9984960

Table 37.--Relative frequencies of genotypes when native population (AABBDD) is overflooded in parental, F_1, F_2, and F_3 generations by X release insects (aabbdd) for every native insect--Continued

Genotype	X = 200				X = 1,000			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
AABBDD---	0.0000248	0.0000002	0.0000000	0.0000000	0.0000010	0.0000001	0.0000000	0.0000000
AABBDd---	-----	.0000003	.0000000	.0000000	-----	.0000001	.0000000	.0000000
AABbDD---	-----	.0000003	.0000000	.0000000	-----	.0000001	.0000000	.0000000
AaBBDD---	-----	.0000003	.0000000	.0000000	-----	.0000001	.0000000	.0000000
AABBdd---	-----	.0000002	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AAbbDD---	-----	.0000002	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aaBBDD---	-----	.0000002	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABbDd---	-----	.0000007	.0000001	.0000001	-----	.0000000	.0000000	.0000000
AaBBDd---	-----	.0000007	.0000001	.0000001	-----	.0000000	.0000000	.0000000
AaBbDD---	-----	.0000007	.0000001	.0000001	-----	.0000000	.0000000	.0000000
AABbdd---	-----	.0000003	.0000001	.0000000	-----	.0000000	.0000000	.0000000
AAbbDd---	-----	.0000003	.0000001	.0000000	-----	.0000000	.0000000	.0000000
AaBBdd---	-----	.0000003	.0000001	.0000000	-----	.0000000	.0000000	.0000000
AabbDD---	-----	.0000003	.0000001	.0000000	-----	.0000000	.0000000	.0000000
aaBBDd---	-----	.0000003	.0000001	.0000000	-----	.0000000	.0000000	.0000000
aaBbDD---	-----	.0000003	.0000001	.0000000	-----	.0000000	.0000000	.0000000
AaBbDd---	.0099007	.0008429	.0000916	.0000108	.0019960	.0001670	.0000180	.0000021
AAbbdd---	-----	.0000002	.0000002	.0000001	-----	.0000001	.0000001	.0000000
aaBBdd---	-----	.0000002	.0000002	.0000001	-----	.0000001	.0000001	.0000000
aabbDD---	-----	.0000002	.0000002	.0000001	-----	.0000001	.0000001	.0000000
AaBbdd---	-----	.0008257	.0002683	.0000735	-----	.0001664	.0000536	.0000146
AabbDd---	-----	.0008257	.0002683	.0000735	-----	.0001664	.0000536	.0000146
aaBbDd---	-----	.0008257	.0002683	.0000735	-----	.0001664	.0000536	.0000146
Aabbdd---	-----	.0008254	.0007980	.0005083	-----	.0001663	.0001605	.0001020
aaBbdd---	-----	.0008254	.0007980	.0005083	-----	.0001663	.0001605	.0001020
aabbDd---	-----	.0008254	.0007980	.0005083	-----	.0001663	.0001605	.0001020
aabbdd---	.9900745	.9941983	.9967092	.9982441	.9980003	.9988348	.9993399	.9996479

Table 38.--Relative frequencies of genotypes when native population (AABBDDEE) is overflooded in parental, F_1, F_2, and F_3 generations by X release insects (aabbddee) for every native insect

Genotype	X = 1				X = 2				X = 4			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
AABBDDEE	0.2500000	0.0197754	0.0006323	0.0000120	0.1111111	0.0035431	0.0000554	0.0000006	0.0625000	0.0011816	0.0000131	0.0000001
[illegible]	-----	.0043945	.0006016	.0000284	-----	.0014172	.0000841	.0000023	-----	.0006445	.0000252	.0000005
[illegible]	-----	.0043945	.0006016	.0000284	-----	.0014172	.0000841	.0000023	-----	.0006445	.0000252	.0000005
[illegible]	-----	.0043945	.0006016	.0000284	-----	.0014172	.0000841	.0000023	-----	.0006445	.0000252	.0000005
[illegible]	-----	.0043945	.0006016	.0000284	-----	.0014172	.0000841	.0000023	-----	.0006445	.0000252	.0000005
[illegible]	-----	.0002441	.0001431	.0000168	-----	.0001417	.0000320	.0000021	-----	.0000879	.0000122	.0000006
[illegible]	-----	.0002441	.0001431	.0000168	-----	.0001417	.0000320	.0000021	-----	.0000879	.0000122	.0000006
[illegible]	-----	.0002441	.0001431	.0000168	-----	.0001417	.0000320	.0000021	-----	.0000879	.0000122	.0000006
[illegible]	-----	.0002441	.0001431	.0000168	-----	.0001417	.0000320	.0000021	-----	.0000879	.0000122	.0000006
[illegible]	-----	.0048828	.0009615	.0000881	-----	.0017007	.0001865	.0000104	-----	.0008203	.0000669	.0000029

Table 38.--Relative frequencies of genotypes when native population (AABBDDEE) is overflooded in parental, F_1, F_2, and F_3 generations by X release insects (aabbddee) for every native insect--Continued

Genotype	X = 4				X = 5				X = 10			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
AABBDDEE	0.0400000	0.0005325	0.0000048	0.0000000	0.0277778	0.0002865	0.0000022	0.0000000	0.0082645	0.0000435	0.0000002	0.0000000
AABBDDEe	-- -----	.0003550	.0000107	.0000002	-----	.0002204	.0000056	.0000001	-----	.0000484	.0000008	.0000000
AABBDdEE	-- -----	.0003550	.0000107	.0000002	-----	.0002204	.0000056	.0000001	-----	.0000484	.0000008	.0000000
AABbDDEE	-- -----	.0003550	.0000107	.0000002	-----	.0002204	.0000056	.0000001	-----	.0000484	.0000008	.0000000
AaBBDDEE	-- -----	.0003550	.0000107	.0000002	-----	.0002204	.0000056	.0000001	-----	.0000484	.0000008	.0000000
AABBDDee	-- -----	.0000592	.0000061	.0000003	-----	.0000424	.0000035	.0000001	-----	.0000134	.0000007	.0000000
AABBddEE	-- -----	.0000592	.0000061	.0000003	-----	.0000424	.0000035	.0000001	-----	.0000134	.0000007	.0000000
AAbbDDEE	-- -----	.0000592	.0000061	.0000003	-----	.0000424	.0000035	.0000001	-----	.0000134	.0000007	.0000000
aaBBDDEE	-- -----	.0000592	.0000061	.0000003	-----	.0000424	.0000035	.0000001	-----	.0000134	.0000007	.0000000
AABBDdEe	-- -----	.0004734	.0000320	.0000012	-----	.0003052	.0000181	.0000006	-----	.0000752	.0000032	.0000001
AABbDDEe	-- -----	.0004734	.0000320	.0000012	-----	.0003052	.0000181	.0000006	-----	.0000752	.0000032	.0000001
AABbDdEE	-- -----	.0004734	.0000320	.0000012	-----	.0003052	.0000181	.0000006	-----	.0000752	.0000032	.0000001
AaBBDDEe	-- -----	.0004734	.0000320	.0000012	-----	.0003052	.0000181	.0000006	-----	.0000752	.0000032	.0000001
AaBBDdEE	-- -----	.0004734	.0000320	.0000012	-----	.0003052	.0000181	.0000006	-----	.0000752	.0000032	.0000001
AaBbDDEE	-- -----	.0004734	.0000320	.0000012	-----	.0003052	.0000181	.0000006	-----	.0000752	.0000032	.0000001
AABBDdee	-- -----	.0001183	.0000225	.0000019	-----	.0000848	.0000140	.0000011	-----	.0000269	.0000032	.0000002
AABBddEe	-- -----	.0001183	.0000225	.0000019	-----	.0000848	.0000140	.0000011	-----	.0000269	.0000032	.0000002
AABbDDee	-- -----	.0001183	.0000225	.0000019	-----	.0000848	.0000140	.0000011	-----	.0000269	.0000032	.0000002
AABbddEE	-- -----	.0001183	.0000225	.0000019	-----	.0000848	.0000140	.0000011	-----	.0000269	.0000032	.0000002
AAbbDDEe	-- -----	.0001183	.0000225	.0000019	-----	.0000848	.0000140	.0000011	-----	.0000269	.0000032	.0000002
AAbbDdEE	-- -----	.0001183	.0000225	.0000019	-----	.0000848	.0000140	.0000011	-----	.0000269	.0000032	.0000002
AaBBDDEe	-- -----	.0001183	.0000225	.0000019	-----	.0000848	.0000140	.0000011	-----	.0000269	.0000032	.0000002
AaBBDdEE	-- -----	.0001183	.0000225	.0000019	-----	.0000848	.0000140	.0000011	-----	.0000269	.0000032	.0000002
AaBbDDEE	-- -----	.0001183	.0000225	.0000019	-----	.0000848	.0000140	.0000011	-----	.0000269	.0000032	.0000002
AABBddee	-- -----	.0000592	.0000209	.0000035	-----	.0000424	.0000139	.0000021	-----	.0000134	.0000038	.0000005
AAbbDDee	-- -----	.0000592	.0000209	.0000035	-----	.0000424	.0000139	.0000021	-----	.0000134	.0000038	.0000005
AAbbddEE	-- -----	.0000592	.0000209	.0000035	-----	.0000424	.0000139	.0000021	-----	.0000134	.0000038	.0000005
aaBBDDee	-- -----	.0000592	.0000209	.0000035	-----	.0000424	.0000139	.0000021	-----	.0000134	.0000038	.0000005
aaBBddEE	-- -----	.0000592	.0000209	.0000035	-----	.0000424	.0000139	.0000021	-----	.0000134	.0000038	.0000005
aabbDDEE	-- -----	.0000592	.0000209	.0000035	-----	.0000424	.0000139	.0000021	-----	.0000134	.0000038	.0000005
AABbDdee	-- -----	.0002367	.0000969	.0000161	-----	.0001695	.0000634	.0000097	-----	.0000537	.0000163	.0000021
AABbddEe	-- -----	.0002367	.0000969	.0000161	-----	.0001695	.0000634	.0000097	-----	.0000537	.0000163	.0000021
AAbbDdEe	-- -----	.0002367	.0000969	.0000161	-----	.0001695	.0000634	.0000097	-----	.0000637	.0000163	.0000021
AaBBDdee	-- -----	.0002367	.0000969	.0000161	-----	.0001695	.0000634	.0000097	-----	.0000637	.0000163	.0000021
AaBBddEe	-- -----	.0002367	.0000969	.0000161	-----	.0001695	.0000634	.0000097	-----	.0000637	.0000163	.0000021
AaBbDDee	-- -----	.0002367	.0000969	.0000161	-----	.0001695	.0000634	.0000097	-----	.0000637	.0000163	.0000021
AaBbddEE	-- -----	.0002367	.0000969	.0000161	-----	.0001695	.0000634	.0000097	-----	.0000637	.0000163	.0000021
AabbDDEe	-- -----	.0002367	.0000969	.0000161	-----	.0001695	.0000634	.0000097	-----	.0000637	.0000163	.0000021
AabbDdEE	-- -----	.0002367	.0000969	.0000161	-----	.0001695	.0000634	.0000097	-----	.0000637	.0000163	.0000021
aaBBDdEe	-- -----	.0002367	.0000969	.0000161	-----	.0001695	.0000634	.0000097	-----	.0000637	.0000163	.0000021
aaBbDDEe	-- -----	.0002367	.0000969	.0000161	-----	.0001695	.0000634	.0000097	-----	.0000637	.0000163	.0000021
aaBbDdEE	-- -----	.0002367	.0000969	.0000161	-----	.0001695	.0000634	.0000097	-----	.0000637	.0000163	.0000021
AABbddee	-- -----	.0001183	.0001025	.0000339	-----	.0000848	.0000707	.0000221	-----	.0000269	.0000206	.0000567
AAbbDdee	-- -----	.0001183	.0001025	.0000339	-----	.0000848	.0000707	.0000221	-----	.0000269	.0000206	.0000567
AAbbddEe	-- -----	.0001183	.0001025	.0000339	-----	.0000848	.0000707	.0000221	-----	.0000269	.0000206	.0000567
AaBBddee	-- -----	.0001183	.0001025	.0000339	-----	.0000848	.0000707	.0000221	-----	.0000269	.0000206	.0000467
AabbDDee	-- -----	.0001183	.0001025	.0000339	-----	.0000848	.0000707	.0000221	-----	.0000269	.0000206	.0000467
AabbddEE	-- -----	.0001183	.0001025	.0000339	-----	.0000848	.0000707	.0000221	-----	.0000269	.0000206	.0000467
aaBBDdee	-- -----	.0001183	.0001025	.0000339	-----	.0000848	.0000707	.0000221	-----	.0000269	.0000206	.0000467
aaBBddEe	-- -----	.0001183	.0001025	.0000339	-----	.0000848	.0000707	.0000221	-----	.0000269	.0000206	.0000467
aaBbDDee	-- -----	.0001183	.0001025	.0000339	-----	.0000848	.0000707	.0000221	-----	.0000269	.0000206	.0000467
aaBbddEE	-- -----	.0001183	.0001025	.0000339	-----	.0000848	.0000707	.0000221	-----	.0000269	.0000206	.0000467
aabbDDEe	-- -----	.0001183	.0001025	.0000339	-----	.0000848	.0000707	.0000221	-----	.0000269	.0000206	.0000467
aabbDdEE	-- -----	.0001183	.0001025	.0000339	-----	.0000848	.0000707	.0000221	-----	.0000269	.0000206	.0000467
AaBbDdEe	--.3200000	.0409467	.0043416	.0004223	.2777777	.0307888	.0029945	.0002736	.1652892	.0126203	.0009883	.0000772
AAbbddee	-- -----	.0000592	.0001257	.0000831	-----	.0000424	.0000897	.0000573	-----	.0000134	.0000282	.0000168
aaBBddee	-- -----	.0000592	.0001257	.0000831	-----	.0000424	.0000897	.0000573	-----	.0000134	.0000282	.0000168
aabbDDee	-- -----	.0000592	.0001257	.0000831	-----	.0000424	.0000897	.0000573	-----	.0000134	.0000282	.0000168
aabbddEE	-- -----	.0000592	.0001257	.0000831	-----	.0000424	.0000897	.0000573	-----	.0000134	.0000282	.0000168
AaBbDdee	-- -----	.0137278	.0048131	.0010579	-----	.0118679	.0037046	.0007615	-----	.0069874	.0016477	.0002874
AaBbddEe	-- -----	.0137278	.0048131	.0010579	-----	.0118679	.0037046	.0007615	-----	.0069874	.0016477	.0002874
AabbDdEe	-- -----	.0137278	.0048131	.0010579	-----	.0118679	.0037046	.0007615	-----	.0069874	.0016477	.0002874
aaBbDdEe	-- -----	.0137278	.0048131	.0010579	-----	.0118679	.0037046	.0007615	-----	.0069874	.0016477	.0002874
AaBbddee	-- -----	.0134911	.0086192	.0036980	-----	.0116984	.0071226	.0029122	-----	.0069336	.0037924	.0013869
AabbDdee	-- -----	.0134911	.0086192	.0036980	-----	.0116984	.0071226	.0029122	-----	.0069336	.0037924	.0013869
AabbddEe	-- -----	.0134911	.0086192	.0036980	-----	.0116984	.0071226	.0029122	-----	.0069336	.0037924	.0013869
aaBbDdee	-- -----	.0134911	.0086192	.0036980	-----	.0116984	.0071226	.0029122	-----	.0069336	.0037924	.0013869
aaBbddEe	-- -----	.0134911	.0086192	.0036980	-----	.0116984	.0071226	.0029122	-----	.0069336	.0037924	.0013869
aabbDdEe	-- -----	.0134911	.0086192	.0036980	-----	.0116984	.0071226	.0029122	-----	.0069336	.0037924	.0013869
Aabbddee	-- -----	.0133728	.0205367	.0173242	-----	.0116136	.0176315	.0145297	-----	.0069068	.0102400	.0080244
aaBbddee	-- -----	.0133728	.0205367	.0173242	-----	.0116136	.0176315	.0145297	-----	.0069068	.0102400	.0080244
aabbDdee	-- -----	.0137278	.0205367	.0173242	-----	.0116136	.0176315	.0145297	-----	.0069068	.0102400	.0080244
aabbddEe	-- -----	.0133728	.0205367	.0173242	-----	.0116136	.0176315	.0145297	-----	.0069068	.0102400	.0080244
aabbddee	--.6400000	.7555621	.8385240	.9028400	.6944443	.7955339	.8662787	.9204267	.8264463	.8875187	.9280058	.9581850

Table 38.--Relative frequencies of genotypes when native population (AABBDDEE) is overflooded in parental, F_1, F_2, and F_3 generations by X release insects (aabbddee) for every native insect--Continued

Genotype	X = 20				X = 50				X = 100			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
AABBDDEE-	0.0022676	0.0000075	0.0000000	0.0000000	0.0003845	0.0000009	0.0000000	0.0000000	0.0000980	0.0000002	0.0000000	0.0000000
[illegible]	-- -----	.0000107	.0000001	.0000000	-----	.0000015	.0000000	.0000000	-----	.0000004	.0000000	.0000000
[illegible]	-- -----	.0000107	.0000001	.0000000	-----	.0000015	.0000000	.0000000	-----	.0000004	.0000000	.0000000
[illegible]	-- -----	.0000107	.0000001	.0000000	-----	.0000015	.0000000	.0000000	-----	.0000004	.0000000	.0000000
[illegible]	-- -----	.0000107	.0000001	.0000000	-----	.0000015	.0000000	.0000000	-----	.0000004	.0000000	.0000000
[illegible]	-- -----	.0000038	.0000001	.0000000	-----	.0000007	.0000000	.0000000	-----	.0000002	.0000000	.0000000
[illegible]	-- -----	.0000038	.0000001	.0000000	-----	.0000007	.0000000	.0000000	-----	.0000002	.0000000	.0000000
[illegible]	-- -----	.0000038	.0000001	.0000000	-----	.0000007	.0000000	.0000000	-----	.0000002	.0000000	.0000000
[illegible]	-- -----	.0000038	.0000001	.0000000	-----	.0000007	.0000000	.0000000	-----	.0000002	.0000000	.0000000
[illegible]	-- -----	.0000183	.0000006	.0000000	-----	.0000028	.0000001	.0000000	-----	.0000007	.0000000	.0000000
[illegible]	-- -----	.0000183	.0000006	.0000000	-----	.0000028	.0000001	.0000000	-----	.0000007	.0000000	.0000000
[illegible]	-- -----	.0000183	.0000006	.0000000	-----	.0000028	.0000001	.0000000	-----	.0000007	.0000000	.0000000
[illegible]	-- -----	.0000183	.0000006	.0000000	-----	.0000028	.0000001	.0000000	-----	.0000007	.0000000	.0000000
[illegible]	-- -----	.0000183	.0000006	.0000000	-----	.0000028	.0000001	.0000000	-----	.0000007	.0000000	.0000000
[illegible]	-- -----	.0000076	.0000007	.0000000	-----	.0000013	.0000001	.0000000	-----	.0000003	.0000000	.0000000
[illegible]	-- -----	.0000076	.0000007	.0000000	-----	.0000013	.0000001	.0000000	-----	.0000003	.0000000	.0000000
[illegible]	-- -----	.0000076	.0000007	.0000000	-----	.0000013	.0000001	.0000000	-----	.0000003	.0000000	.0000000
[illegible]	-- -----	.0000076	.0000007	.0000000	-----	.0000013	.0000001	.0000000	-----	.0000003	.0000000	.0000000
[illegible]	-- -----	.0000076	.0000007	.0000000	-----	.0000013	.0000001	.0000000	-----	.0000003	.0000000	.0000000
[illegible]	-- -----	.0000076	.0000007	.0000000	-----	.0000013	.0000001	.0000000	-----	.0000003	.0000000	.0000000
[illegible]	-- -----	.0000076	.0000007	.0000000	-----	.0000013	.0000001	.0000000	-----	.0000003	.0000000	.0000000
[illegible]	-- -----	.0000076	.0000007	.0000000	-----	.0000013	.0000001	.0000000	-----	.0000003	.0000000	.0000000
[illegible]	-- -----	.0000335	.0000032	.0000002	-----	.0000055	.0000005	.0000000	-----	.0000014	.0000001	.0000000
[illegible]	-- -----	.0000335	.0000032	.0000002	-----	.0000055	.0000005	.0000000	-----	.0000014	.0000001	.0000000
[illegible]	-- -----	.0000335	.0000032	.0000002	-----	.0000055	.0000005	.0000000	-----	.0000014	.0000001	.0000000
[illegible]	-- -----	.0000335	.0000032	.0000002	-----	.0000055	.0000005	.0000000	-----	.0000014	.0000001	.0000000
[illegible]	-- -----	.0000038	.0000010	.0000001	-----	.0000007	.0000002	.0000000	-----	.0000002	.0000000	.0000000
[illegible]	-- -----	.0000038	.0000010	.0000001	-----	.0000007	.0000002	.0000000	-----	.0000002	.0000000	.0000000
[illegible]	-- -----	.0000038	.0000010	.0000001	-----	.0000007	.0000002	.0000000	-----	.0000002	.0000000	.0000000
[illegible]	-- -----	.0000038	.0000010	.0000001	-----	.0000007	.0000002	.0000000	-----	.0000002	.0000000	.0000000
[illegible]	-- -----	.0000038	.0000010	.0000001	-----	.0000007	.0000002	.0000000	-----	.0000002	.0000000	.0000000
[illegible]	-- -----	.0000152	.0000041	.0000005	-----	.0000026	.0000006	.0000001	-----	.0000007	.0000002	.0000000
[illegible]	-- -----	.0000152	.0000041	.0000005	-----	.0000026	.0000006	.0000001	-----	.0000007	.0000002	.0000000
[illegible]	-- -----	.0000152	.0000041	.0000005	-----	.0000026	.0000006	.0000001	-----	.0000007	.0000002	.0000000
[illegible]	-- -----	.0000152	.0000041	.0000005	-----	.0000026	.0000006	.0000001	-----	.0000007	.0000002	.0000000
[illegible]	-- -----	.0000152	.0000041	.0000005	-----	.0000026	.0000006	.0000001	-----	.0000007	.0000002	.0000000
[illegible]	-- -----	.0000152	.0000041	.0000005	-----	.0000026	.0000006	.0000001	-----	.0000007	.0000002	.0000000
[illegible]	-- -----	.0000152	.0000041	.0000005	-----	.0000026	.0000006	.0000001	-----	.0000007	.0000002	.0000000
[illegible]	-- -----	.0000152	.0000041	.0000005	-----	.0000026	.0000006	.0000001	-----	.0000007	.0000002	.0000000
[illegible]	-- -----	.0000152	.0000041	.0000005	-----	.0000026	.0000006	.0000001	-----	.0000007	.0000002	.0000000
[illegible]	-- -----	.0000076	.0000056	.0000014	-----	.0000013	.0000009	.0000002	-----	.0000003	.0000002	.0000000
[illegible]	-- -----	.0000076	.0000056	.0000014	-----	.0000013	.0000009	.0000002	-----	.0000003	.0000002	.0000000
[illegible]	-- -----	.0000076	.0000056	.0000014	-----	.0000013	.0000009	.0000002	-----	.0000003	.0000002	.0000000
[illegible]	-- -----	.0000076	.0000056	.0000014	-----	.0000013	.0000009	.0000002	-----	.0000003	.0000002	.0000000
[illegible]	-- -----	.0000076	.0000056	.0000014	-----	.0000013	.0000009	.0000002	-----	.0000003	.0000002	.0000000
[illegible]	-- -----	.0000076	.0000056	.0000014	-----	.0000013	.0000009	.0000002	-----	.0000003	.0000002	.0000000
[illegible]	-- -----	.0000076	.0000056	.0000014	-----	.0000013	.0000009	.0000002	-----	.0000003	.0000002	.0000000
[illegible]	-- -----	.0000076	.0000056	.0000014	-----	.0000013	.0000009	.0000002	-----	.0000003	.0000002	.0000000
[illegible]	-- -----	.0000076	.0000056	.0000014	-----	.0000013	.0000009	.0000002	-----	.0000003	.0000002	.0000000
AaBbDdEe	-.0907029	.0053536	.0003603	.0000252	.0384467	.0018689	.0001114	.0000071	.0196059	.0008850	.0000502	.0000031
AAbbddee	-- -----	.0000038	.0000080	.0000046	-----	.0000007	.0000014	.0000008	-----	.0000002	.0000004	.0000002
aaBBddee	-- -----	.0000038	.0000080	.0000046	-----	.0000007	.0000014	.0000008	-----	.0000002	.0000004	.0000002
aabbDDee	-- -----	.0000038	.0000080	.0000046	-----	.0000007	.0000014	.0000008	-----	.0000002	.0000004	.0000002
aabbddEE	-- -----	.0000038	.0000080	.0000046	-----	.0000007	.0000014	.0000008	-----	.0000002	.0000004	.0000002
AaBbDdee	-- -----	.0038087	.0007544	.0001182	-----	.0016071	.0002822	.0000408	-----	.0008183	.0001376	.0000193
AaBbddEe	-- -----	.0038087	.0007544	.0001182	-----	.0016071	.0002822	.0000408	-----	.0008183	.0001376	.0000193
AabbDdEe	-- -----	.0038087	.0007544	.0001182	-----	.0016071	.0002822	.0000408	-----	.0008183	.0001376	.0000193
aaBbDdEe	-- -----	.0038087	.0007544	.0001182	-----	.0016071	.0002822	.0000408	-----	.0008183	.0001376	.0000193
AaBbddee	-- -----	.0037935	.0019535	.0006688	-----	.0016045	.0007948	.0002605	-----	.0008176	.0003996	.0001289
AabbDdee	-- -----	.0037935	.0019535	.0006688	-----	.0016045	.0007948	.0002605	-----	.0008176	.0003996	.0001289
AabbddEe	-- -----	.0037935	.0019535	.0006688	-----	.0016045	.0007948	.0002605	-----	.0008176	.0003996	.0001289
aaBbDdee	-- -----	.0037935	.0019535	.0006688	-----	.0016045	.0007948	.0002605	-----	.0008176	.0003996	.0001289
aaBbddEe	-- -----	.0037935	.0019535	.0006688	-----	.0016045	.0007948	.0002605	-----	.0008176	.0003996	.0001289
aabbDdEe	-- -----	.0037935	.0019535	.0006688	-----	.0016045	.0007948	.0002605	-----	.0008176	.0003996	.0001289
Aabbddee	-- -----	.0037859	.0055448	.0042286	-----	.0016032	.0023306	.0017474	-----	.0008172	.0011851	.0008834
aaBbddee	-- -----	.0037859	.0055448	.0042286	-----	.0016032	.0023306	.0017474	-----	.0008172	.0011851	.0008834
aabbDdee	-- -----	.0037859	.0055448	.0042286	-----	.0016032	.0023306	.0017474	-----	.0008172	.0011851	.0008834
aabbddEe	-- -----	.0037859	.0055448	.0042286	-----	.0016032	.0023306	.0017474	-----	.0008172	.0011851	.0008834
aabbddee-	-.9070289	.9407940	.9625418	.9785320	.9611688	.9755442	.9846391	.9912704	.9802959	.9876375	.9922542	.9956108

Table 38.--Relative frequencies of genotypes when native population (AABBDDEE) is overflooded in parental, F_1, F_2, and F_3 generations by X release insects (aabbddee) for every native insect--Continued

Genotype	X = 200				X = 500				X = 1,000			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
AABBDDEE	0.0000248	0.0000000	0.0000000	0.0000000	0.0000040	0.0000000	0.0000000	0.0000000	0.0000010	0.0000000	0.0000000	0.0000000
AABBDDEe	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABBDdEE	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABbDDEE	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBBDDEE	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABBDDee	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABBddEE	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AAbbDDEE	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aaBBDDEE	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABBDdEe	-----	.0000002	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABbDDEe	-----	.0000002	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABbDdEE	-----	.0000002	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBBDDEe	-----	.0000002	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBBDdEE	-----	.0000002	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBbDDEE	-----	.0000002	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABBDdee	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABBddEe	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABbDDee	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABbddEE	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AAbbDDEe	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AAbbDdEE	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBBDDee	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBBddEE	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBbDDEE	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aaBBDDEE	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aaBbDdEE	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aaBbDDEE	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABbDdEe	-----	.0000003	.0000000	.0000000	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBBDdEe	-----	.0000003	.0000000	.0000000	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBbDDEe	-----	.0000003	.0000000	.0000000	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBbDdEE	-----	.0000003	.0000000	.0000000	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABBddee	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AAbbDDee	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AAbbddEE	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aaBBDDee	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aaBBddEE	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aabbDDEE	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABbDdee	-----	.0000002	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABbddEe	-----	.0000002	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AAbbDdEe	-----	.0000002	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBBDdee	-----	.0000002	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBBddEe	-----	.0000002	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBbDDee	-----	.0000002	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBbddEE	-----	.0000002	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AabbDDEe	-----	.0000002	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AabbDdEE	-----	.0000002	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aaBBDdEe	-----	.0000002	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aaBbDDEe	-----	.0000002	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aaBbDdEE	-----	.0000002	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABbddee	-----	.0000001	.0000001	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AAbbDdee	-----	.0000001	.0000001	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AAbbddEe	-----	.0000001	.0000001	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBBddee	-----	.0000001	.0000001	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBbDDee	-----	.0000001	.0000001	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBbddEE	-----	.0000001	.0000001	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aaBBDdee	-----	.0000001	.0000001	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aaBBddEe	-----	.0000001	.0000001	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aaBbDDee	-----	.0000001	.0000001	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aaBbddEE	-----	.0000001	.0000001	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aabbDDEe	-----	.0000001	.0000001	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aabbDdEE	-----	.0000001	.0000001	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBbDdEe	.0099007	.0004297	.0000237	.0000014	.0039840	.0001688	.0000091	.0000005	.0019960	.0000839	.0000045	.0000003
AAbbddee	-----	.0000000	.0000001	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aaBBddee	-----	.0000000	.0000001	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aabbDDee	-----	.0000000	.0000001	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aabbddEE	-----	.0000000	.0000001	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBbDdee	-----	.0004129	.0000679	.0000094	-----	.0001661	.0000269	.0000037	-----	.0000832	.0000134	.0000018
AaBbddEe	-----	.0004129	.0000679	.0000094	-----	.0001661	.0000269	.0000037	-----	.0000832	.0000134	.0000018
AabbDdEe	-----	.0004129	.0000679	.0000094	-----	.0001661	.0000269	.0000037	-----	.0000832	.0000134	.0000018
aaBbDdEe	-----	.0004129	.0000679	.0000094	-----	.0001661	.0000269	.0000037	-----	.0000832	.0000134	.0000018
AaBbddee	-----	.0004127	.0002004	.0000641	-----	.0001660	.0000803	.0000256	-----	.0000832	.0000402	.0000128
AabbDdee	-----	.0004127	.0002004	.0000641	-----	.0001660	.0000803	.0000256	-----	.0000832	.0000402	.0000128
AabbddEe	-----	.0004127	.0002004	.0000641	-----	.0001660	.0000803	.0000256	-----	.0000832	.0000402	.0000128
aaBbDdee	-----	.0004127	.0002004	.0000641	-----	.0001660	.0000803	.0000256	-----	.0000832	.0000402	.0000128
aaBbddEe	-----	.0004127	.0002004	.0000641	-----	.0001660	.0000803	.0000256	-----	.0000832	.0000402	.0000128
aabbDdEe	-----	.0004127	.0002004	.0000641	-----	.0001660	.0000803	.0000256	-----	.0000832	.0000402	.0000128
Aabbddee	-----	.0004126	.0005976	.0004441	-----	.0001660	.0002403	.0001782	-----	.0000832	.0001203	.0000892
aaBbddee	-----	.0004126	.0004976	.0004441	-----	.0001660	.0002403	.0001782	-----	.0000832	.0001203	.0000892
aabbDdee	-----	.0004126	.0005976	.0004441	-----	.0001660	.0002403	.0001782	-----	.0000832	.0001203	.0000892
aabbddEe	-----	.0004126	.0005976	.0004441	-----	.0001660	.0002403	.0001782	-----	.0000832	.0001203	.0000892
aabbddee	.9900745	.9937846	.9961105	.9977992	.9960119	.9975056	.9984402	.9991182	.9980030	.9987514	.9992194	.9995588

Table 39.--Relative frequencies of male genotypes when native population (3 autosomal genes BBDDEE plus 1 sex-linked gene AA; female is heterogametic) is overflooded by X release insects (aabbddee, a-bbddee) for every native insect

Genotype	X				A				Δ			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
AABBDDEE	0.1250000	0.0098877	0.0003162	0.0000060	0.0555555	0.0017715	0.0000277	0.0000003	0.0312500	0.0005908	0.0000065	0.0000001
AABBDDEe	--	-----	.0021973	[illegible]	-----	.0007086	.0000421	.0000011	-----	.0003223	.0000126	.0000003
AABbDdEE	--	-----	.0021973	[illegible]	-----	.0007086	[illegible]	.0000011	-----	.0003223	.0000126	.0000003
AABbDDEE	--	-----	.0021973	[illegible]	-----	.0007086	[illegible]	[illegible]	-----	.0003223	.0000126	.0000003
AaBBDDEE	--	-----	.0021973	[illegible]	-----	.0007086	[illegible]	.0000011	-----	[illegible]	.0000126	.0000003
AABBDDee	--	-----	.0001221	[illegible]	-----	.0000709	[illegible]	.0000010	-----	[illegible]	[illegible]	.0000003
AABBddEE	--	-----	.0001221	[illegible]	-----	.0000709	.0000160	.0000010	-----	[illegible]	[illegible]	.0000003
AABbDDEE	--	-----	.0001221	[illegible]	-----	[illegible]	.0000160	.0000010	-----	.0000439	.0000061	[illegible]
aaBBDDEE	--	-----	.0001221	[illegible]	-----	.0000709	[illegible]	.0000010	-----	[illegible]	.0000061	[illegible]
AABBDdEe	--	-----	.0024414	[illegible]	-----	[illegible]	.0000932	.0000052	-- --	.0004102	.0000334	.0000015
AABbDDEe	--	-----	.0024414	[illegible]	-----	.0008503	.0000932	.0000052	-----	.0004102	[illegible]	.0000015
AABbDdEE	--	-----	.0024414	[illegible]	-----	.0008503	.0000932	.0000052	-----	[illegible]	[illegible]	.0000015
AaBBDDEe	--	-----	.0024414	[illegible]	-----	.0008503	.0000932	.0000052	-----	.0004102	.0000334	.0000015
AaBBDdEE	--	-----	.0024414	[illegible]	-----	.0008503	.0000932	.0000052	-----	[illegible]	.0000334	.0000015
AaBbDDEE	--	-----	.0024414	[illegible]	-----	.0008503	.0000932	.0000052	-----	.0004102	.0000334	.0000015
AABbDdEe	--	-----	.0029297	[illegible]	-----	.0011338	.0002703	.0000292	-----	.0005859	.0001112	.0000098
AaBBDdEe	--	-- ---	.0029297	[illegible]	-----	[illegible]	.0002703	[illegible]	-----	.0005859	.0001112	.0000098
AaBbDDEe	--	-----	.0029297	.0010774	-----	[illegible]	[illegible]	[illegible]	-----	.0005859	.0001112	.0000098
AaBbDdEE	--	-----	.0029297	.0010774	-----	[illegible]	.0002703	.0000292	-----	.0005859	.0001112	.0000098
AABBddee	--	-----	.0001221	[illegible]	-----	[illegible]	.0000339	.0000077	-----	.0000439	.0000173	.0000032
AABbDDee	--	-----	.0001221	[illegible]	-----	.0000709	.0000339	.0000077	-----	[illegible]	.0000173	.0000032
AABbDdee	--	-----	[illegible]	[illegible]	-----	[illegible]	.0000339	.0000077	-----	.0000439	.0000173	.0000032
aaBBDDee	--	-----	[illegible]	[illegible]	-----	.0000709	.0000339	[illegible]	-----	.0000439	.0000173	.0000032
aaBbDDee	--	-----	[illegible]	[illegible]	-----	[illegible]	.0000339	.0000077	-----	.0000439	.0000173	.0000032
AABbddEe	--	-----	[illegible]	[illegible]	-----	[illegible]	.0001671	.0000376	-----	.0001758	.0000825	.0000153
AABbDdEE	--	-----	[illegible]	[illegible]	-----	.0002834	.0001671	.0000376	-----	.0001758	.0000825	.0000153
AABBDdEe	--	-----	[illegible]	[illegible]	-----	.0002834	[illegible]	.0000376	-----	.0001758	.0000825	.0000153
AaBbDDEe	--	-----	[illegible]	[illegible]	-----	.0002834	.0001671	.0000376	-----	.0001758	.0000825	.0000153
AaBbDdEE	--	-----	[illegible]	[illegible]	-----	.0002834	.0001671	.0000376	-----	.0001758	.0000825	.0000153
AaBBDDEe	--	-----	[illegible]	[illegible]	-----	.0002834	[illegible]	.0000376	-----	.0001768	.0000825	.0000153
AaBBDdEE	--	-----	[illegible]	[illegible]	-----	.0002834	[illegible]	.0000376	-----	.0001768	.0000825	.0000153
AABbDDEE	--	-----	[illegible]	[illegible]	-----	.0002834	.0001671	.0000376	-----	.0001768	.0000825	.0000153
aaBbDDEe	--	-----	[illegible]	[illegible]	-----	.0002834	.0001671	.0000376	-----	.0001768	.0000825	.0000153
aaBbDdEE	--	-----	[illegible]	[illegible]	-----	[illegible]	.0001671	.0000376	-----	.0001768	.0000825	.0000153
aaBBDdEe	--	-----	[illegible]	[illegible]	-----	.0001417	.0001446	.0000603	-----	.0000879	.0000807	.0000291
AABBDdee	--	-----	[illegible]	[illegible]	-----	[illegible]	.0001446	.0000603	-----	.0000879	.0000807	.0000291
AABbDDee	--	-----	[illegible]	[illegible]	-----	.0001417	.0001446	.0000603	-----	.0000879	.0000807	.0000291
AABbDdEe	--	-----	[illegible]	[illegible]	-----	[illegible]	.0001446	.0000603	-----	.0000879	.0000807	.0000291
AaBBDDee	--	-----	[illegible]	[illegible]	-----	.0001417	.0001446	.0000603	-----	.0000879	.0000807	.0000291
AaBBDdEe	--	-----	[illegible]	[illegible]	-----	[illegible]	.0001446	.0000603	-----	.0000879	.0000807	.0000291
AaBbDDEe	--	-----	[illegible]	[illegible]	-----	.0001417	.0001446	.0000603	-----	.0000879	.0000807	.0000291
AaBbDdEE	--	-----	[illegible]	[illegible]	-----	.0001417	.0001446	.0000603	-----	.0000879	.0000807	.0000291
aaBBDDEe	--	-----	[illegible]	[illegible]	-----	.0001417	.0001446	.0000603	-----	.0000879	.0000807	.0000291
aaBbDdEE	--	-----	[illegible]	[illegible]	-----	.0001417	.0001446	.0000603	-----	.0000879	.0000807	.0000291
AaBbDdEe	--	.1250000	.0049469	.0034757	.2222222	.0470521	.0069270	.0008555	.1875000	.0292969	.0035194	.0003747
AABBDDee	--	-----	.0001221	[illegible]	-----	.0000709	[illegible]	.0001180	-----	.0000439	.0000941	.0000655
AABBddEe	--	-----	.0001221	[illegible]	-----	.0000709	.0001542	.0001180	-----	.0000439	.0000941	.0000655
AABbDDEe	--	-----	[illegible]	[illegible]	-----	[illegible]	.0001542	.0001180	-----	.0000439	.0000941	.0000655
AABbDdEE	--	-----	.0001221	[illegible]	-----	.0000709	.0001542	.0001180	-----	.0000439	.0000941	.0000655
AaBbDdEe	--	-----	[illegible]	[illegible]	-----	.0096372	.0052419	.0014921	-----	.0080859	.0033552	.0008131
AaBbDdEE	--	-----	[illegible]	.0039949	-----	.0096372	.0052419	.0014921	-----	.0080859	.0033552	.0008131
AaBbDDEe	--	-----	[illegible]	[illegible]	-----	.0096372	.0052419	.0014921	-----	.0080859	.0033552	.0008131
aaBbDdEe	--	-----	.0107422	.0039466	-----	.0096372	.0052419	.0014921	-----	.0080859	.0033552	.0008131
AaBbDdEe	--	-----	.0102539	.0106546	.0071396	-----	.0093537	.0073097	.0037999	-----	.0079102	.0054397	.0025077
AaBbDdEe	--	-----	.0102539	.0106546	.0071396	-----	.0093537	.0073097	.0037999	-----	.0079102	.0054397	.0025077
AaBbddEe	--	-----	.0102539	[illegible]	.0071396	-----	.0093537	.0073097	.0037999	-----	.0079102	.0054397	.0025077
aaBbDdEe	--	-----	.0102539	.0106546	.0071396	-----	.0093537	.0073097	.0037999	-----	.0079102	.0054397	.0025077
aaBbddEe	--	-----	.0102539	.0106546	.0071396	-----	.0093537	.0073097	.0037999	-----	.0079102	.0054397	.0025077
AaBbDdEe	--	-----	.0100098	.0178170	.0194526	-----	.0092120	.0149304	.0139573	-----	.0078223	.0122382	.0107095
aaBbDdEe	--	-----	.0100098	.0178170	.0194526	-----	.0092120	.0149304	.0139573	-----	.0078223	.0122382	.0107095
aaBbDdEe	--	-----	.0100098	.0178170	.0194526	-----	.0092120	.0149304	.0139573	-----	.0078223	.0122382	.0107095
aaBbddEe	--	-----	.0100098	.0178170	.0194526	-----	.0092120	.0149304	.0139573	-----	.0078223	.0122382	.0107095
aabbddee	--	.1250000	.2052002	.2825332	.3531170	.2222222	.2993906	.3615028	.4126291	.2812500	.3480907	.3980546	.4375997

Table 39.--Relative frequencies of male genotypes when native population (3 autosomal genes BBDDEE plus 1 sex-linked gene AA; female is heterogametic) is overflooded by X release insects (aabbddee, a-bbddee) for every native insect--Continued

Genotype	X = 4				X = 5				X = 10			
	F1	F2	F3	F4	F1	F2	F3	F4	F1	F2	F3	F4
AABBDDEE--	0.0200000	0.0002663	0.0000024	0.0000000	0.0138889	0.0001433	0.0000011	0.0000000	0.0041322	0.0000218	0.0000001	0.0000000
AABBDDEe--	-----	.0001775	.0000054	.0000001	-----	.0001102	.0000028	.0000000	-----	.0000242	.0000004	.0000000
AABBDdEE--	-----	.0001775	.0000054	.0000001	-----	.0001102	.0000028	.0000000	-----	.0000242	.0000004	.0000000
AABbDDEE--	-----	.0001775	.0000054	.0000001	-----	.0001102	.0000028	.0000000	-----	.0000242	.0000004	.0000000
AaBBDDEE--	-----	.0001775	.0000054	.0000001	-----	.0001102	.0000028	.0000000	-----	.0000242	.0000004	.0000000
AABBDDee--	-----	.0000296	.0000030	.0000001	-----	.0000212	.0000018	.0000001	-----	.0000067	.0000004	.0000000
AABBddEE--	-----	.0000296	.0000030	.0000001	-----	.0000212	.0000018	.0000001	-----	.0000067	.0000004	.0000000
AAbbDDEE--	-----	.0000296	.0000030	.0000001	-----	.0000212	.0000018	.0000001	-----	.0000067	.0000004	.0000000
aaBBDDEE--	-----	.0000296	.0000030	.0000001	-----	.0000212	.0000018	.0000001	-----	.0000067	.0000004	.0000000
AABBDdEe--	-----	.0002367	.0000160	.0000006	-----	.0001526	.0000091	.0000003	-----	.0000376	.0000016	.0000000
AABbDDEe--	-----	.0002367	.0000160	.0000006	-----	.0001526	.0000091	.0000003	-----	.0000376	.0000016	.0000000
AABbDdEE--	-----	.0002367	.0000160	.0000006	-----	.0001526	.0000091	.0000003	-----	.0000376	.0000016	.0000000
AaBBDDEe--	-----	.0002367	.0000160	.0000006	-----	.0001526	.0000091	.0000003	-----	.0000376	.0000016	.0000000
AaBBDdEE--	-----	.0002367	.0000160	.0000006	-----	.0001526	.0000091	.0000003	-----	.0000376	.0000016	.0000000
AaBbDDEE--	-----	.0002367	.0000160	.0000006	-----	.0001526	.0000091	.0000003	-----	.0000376	.0000016	.0000000
AABBDdee--	-----	.0000592	.0000112	.0000009	-----	.0000424	.0000070	.0000005	-----	.0000134	.0000016	.0000001
AABBddEe--	-----	.0000592	.0000112	.0000009	-----	.0000424	.0000070	.0000005	-----	.0000134	.0000016	.0000001
AABbDDee--	-----	.0000592	.0000112	.0000009	-----	.0000424	.0000070	.0000005	-----	.0000134	.0000016	.0000001
AABbddEE--	-----	.0000592	.0000112	.0000009	-----	.0000424	.0000070	.0000005	-----	.0000134	.0000016	.0000001
AAbbDDEe--	-----	.0000592	.0000112	.0000009	-----	.0000424	.0000070	.0000005	-----	.0000134	.0000016	.0000001
AAbbDdEE--	-----	.0000592	.0000112	.0000009	-----	.0000424	.0000070	.0000005	-----	.0000134	.0000016	.0000001
AaBBDDee--	-----	.0000592	.0000112	.0000009	-----	.0000424	.0000070	.0000005	-----	.0000134	.0000016	.0000001
AaBBddEE--	-----	.0000592	.0000112	.0000009	-----	.0000424	.0000070	.0000005	-----	.0000134	.0000016	.0000001
AaBbDDEE--	-----	.0000592	.0000112	.0000009	-----	.0000424	.0000070	.0000005	-----	.0000134	.0000016	.0000001
aaBBDDEe--	-----	.0000592	.0000112	.0000009	-----	.0000424	.0000070	.0000005	-----	.0000134	.0000016	.0000001
aaBBDdEE--	-----	.0000592	.0000112	.0000009	-----	.0000424	.0000070	.0000005	-----	.0000134	.0000016	.0000001
aaBbDDEE--	-----	.0000592	.0000112	.0000009	-----	.0000424	.0000070	.0000005	-----	.0000134	.0000016	.0000001
AABbDdEe--	-----	.0003550	.0000582	.0000046	-----	.0002374	.0000351	.0000025	-----	.0000645	.0000074	.0000004
AaBBDdEe--	-----	.0003550	.0000582	.0000046	-----	.0002374	.0000351	.0000025	-----	.0000645	.0000074	.0000004
AaBbDDEe--	-----	.0003550	.0000582	.0000046	-----	.0002374	.0000351	.0000025	-----	.0000645	.0000074	.0000004
AaBbDdEE--	-----	.0003550	.0000582	.0000046	-----	.0002374	.0000351	.0000025	-----	.0000645	.0000074	.0000004
AABBddee--	-----	.0000296	.0000104	.0000017	-----	.0000212	.0000070	.0000011	-----	.0000067	.0000019	.0000002
AAbbDDee--	-----	.0000296	.0000104	.0000017	-----	.0000212	.0000070	.0000011	-----	.0000067	.0000019	.0000002
AAbbddEE--	-----	.0000296	.0000104	.0000017	-----	.0000212	.0000070	.0000011	-----	.0000067	.0000019	.0000002
aabbDDee--	-----	.0000296	.0000104	.0000017	-----	.0000212	.0000070	.0000011	-----	.0000067	.0000019	.0000002
aaBBddEE--	-----	.0000296	.0000104	.0000017	-----	.0000212	.0000070	.0000011	-----	.0000067	.0000019	.0000002
aabbDDEE--	-----	.0000296	.0000104	.0000017	-----	.0000212	.0000070	.0000011	-----	.0000067	.0000019	.0000002
AABbDdEe--	-----	.0001183	.0000485	.0000080	-----	.0000848	.0000317	.0000049	-----	.0000269	.0000081	.0000010
AABbddEe--	-----	.0001183	.0000485	.0000080	-----	.0000848	.0000317	.0000049	-----	.0000269	.0000081	.0000010
AAbbDdEe--	-----	.0001183	.0000485	.0000080	-----	.0000848	.0000317	.0000049	-----	.0000269	.0000081	.0000010
AaBBDdee--	-----	.0001183	.0000485	.0000080	-----	.0000848	.0000317	.0000049	-----	.0000269	.0000081	.0000010
AaBBddEe--	-----	.0001183	.0000485	.0000080	-----	.0000848	.0000317	.0000049	-----	.0000269	.0000081	.0000010
AaBbDDee--	-----	.0001183	.0000485	.0000080	-----	.0000848	.0000317	.0000049	-----	.0000269	.0000081	.0000010
AaBbddEE--	-----	.0001183	.0000485	.0000080	-----	.0000848	.0000317	.0000049	-----	.0000269	.0000081	.0000010
AabbDDEe--	-----	.0001183	.0000485	.0000080	-----	.0000848	.0000317	.0000049	-----	.0000269	.0000081	.0000010
AabbDdEE--	-----	.0001183	.0000485	.0000080	-----	.0000848	.0000317	.0000049	-----	.0000269	.0000081	.0000010
aaBBDdEe--	-----	.0001183	.0000485	.0000080	-----	.0000848	.0000317	.0000049	-----	.0000269	.0000081	.0000010
aaBbDDEe--	-----	.0001183	.0000485	.0000080	-----	.0000484	.0000317	.0000049	-----	.0000269	.0000081	.0000010
aaBbDdEE--	-----	.0001183	.0000485	.0000080	-----	.0000484	.0000317	.0000049	-----	.0000269	.0000081	.0000010
AABbddee--	-----	.0000592	.0000512	.0000169	-----	.0000424	.0000353	.0000110	-----	.0000134	.0000103	.0000028
AAbbDdee--	-----	.0000592	.0000512	.0000169	-----	.0000424	.0000353	.0000110	-----	.0000134	.0000103	.0000028
AAbbddEe--	-----	.0000592	.0000512	.0000169	-----	.0000424	.0000353	.0000110	-----	.0000134	.0000103	.0000028
AaBBddee--	-----	.0000592	.0000512	.0000169	-----	.0000424	.0000353	.0000110	-----	.0000134	.0000103	.0000028
AabbDDee--	-----	.0000592	.0000512	.0000169	-----	.0000424	.0000353	.0000110	-----	.0000134	.0000103	.0000028
AabbddEE--	-----	.0000592	.0000512	.0000169	-----	.0000424	.0000353	.0000110	-----	.0000134	.0000103	.0000028
aaBBDdee--	-----	.0000592	.0000512	.0000169	-----	.0000424	.0000353	.0000110	-----	.0000134	.0000103	.0000028
aaBbDDee--	-----	.0000592	.0000512	.0000169	-----	.0000424	.0000353	.0000110	-----	.0000134	.0000103	.0000028
aaBbddEE--	-----	.0000592	.0000512	.0000169	-----	.0000424	.0000353	.0000110	-----	.0000134	.0000103	.0000028
aabbDDEe--	-----	.0000592	.0000512	.0000169	-----	.0000424	.0000353	.0000110	-----	.0000134	.0000103	.0000028
aabbDdEE--	-----	.0000592	.0000512	.0000169	-----	.0000424	.0000353	.0000110	-----	.0000134	.0000103	.0000028
AaBbDdEe--	.1600000	.0204734	.0021707	.0002111	.1388888	.0153944	.0014971	.0001368	.0826446	.0063101	.0004941	.0000386
AAbbddee--	-----	.0000296	.0000629	.0000416	-----	.0000212	.0000449	.0000287	-----	.0000067	.0000141	.0000084
aaBBddee--	-----	.0000296	.0000629	.0000416	-----	.0000212	.0000449	.0000287	-----	.0000067	.0000141	.0000084
aabbDDee--	-----	.0000296	.0000629	.0000416	-----	.0000212	.0000449	.0000287	-----	.0000067	.0000141	.0000084
aabbddEE--	-----	.0000296	.0000629	.0000416	-----	.0000212	.0000449	.0000287	-----	.0000067	.0000141	.0000084
AaBbDdee--	-----	.0068639	.0024063	.0005289	-----	.0059340	.0018521	.0003807	-----	.0034937	.0008238	.0001437
AaBbddEe--	-----	.0068639	.0024063	.0005289	-----	.0059340	.0018521	.0003807	-----	.0034937	.0008238	.0001437
AabbDdEe--	-----	.0068639	.0024063	.0005289	-----	.0059340	.0018521	.0003807	-----	.0034937	.0008238	.0001437
aaBbDdEe--	-----	.0068639	.0024063	.0005289	-----	.0059340	.0018521	.0003807	-----	.0034937	.0008238	.0001437
AaBbddee--	-----	.0067456	.0043094	.0018489	-----	.0058492	.0035612	.0014560	-----	.0034668	.0018962	.0006934
AabbDdee--	-----	.0067456	.0043094	.0018489	-----	.0058492	.0035612	.0014560	-----	.0034668	.0018962	.0006934
AabbddEe--	-----	.0067456	.0043094	.0018489	-----	.0058492	.0035612	.0014560	-----	.0034668	.0018962	.0006934
aaBbDdee--	-----	.0067456	.0043094	.0018489	-----	.0058492	.0035612	.0014560	-----	.0034668	.0018962	.0006934
aaBbddEe--	-----	.0069456	.0043094	.0018489	-----	.0058492	.0035612	.0014560	-----	.0034668	.0018962	.0006934
aabbDdEe--	-----	.0069456	.0043094	.0018489	-----	.0058492	.0035612	.0014560	-----	.0034668	.0018962	.0006934
Aabbddee--	-----	.0066864	.0102682	.0086619	-----	.0058068	.0088157	.0072647	-----	.0034534	.0051199	.0040121
aaBbddee--	-----	.0066864	.0102682	.0086619	-----	.0058068	.0088157	.0072647	-----	.0034534	.0051199	.0040121
aabbDdee--	-----	.0066864	.0102682	.0086619	-----	.0058068	.0088157	.0072647	-----	.0034534	.0051199	.0040121
aabbddEe--	-----	.0066864	.0102682	.0086619	-----	.0058068	.0088157	.0072647	-----	.0034534	.0051199	.0040121
aabbddee--	.3200000	.3777810	.4192620	.4514212	.3472222	.3977666	.4331392	.4602124	.4132231	.4437591	.4640030	.4790931

Table 39.--Relative frequencies of male genotypes when native population (3 autosomal genes BBDDEE plus 1 sex-linked gene AA; female is heterogametic) is overflooded by X release insects (aabbddee, a-bbddee) for every native insect--Continued

Genotype	X = 20				X = 50				X = 100			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.0000000	0.0000490	0.0000001	0.0000000	0.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000002	.0000000	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000002	.0000000	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	[illegible]
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000002	.0000000	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000001	.0000000	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000001	.0000000	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000001	.0000000	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	[illegible]
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000004	.0000000	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000004	.0000000	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	[illegible]
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000004	.0000000	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000004	.0000000	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000004	.0000000	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000002	.0000000	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	[illegible]
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000002	.0000000	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000002	.0000000	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000002	.0000000	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000002	.0000000	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000002	.0000000	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000002	.0000000	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000002	.0000000	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000002	.0000000	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000002	.0000000	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000002	.0000000	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000002	.0000000	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000002	.0000000	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	[illegible]
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000007	.0000001	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000007	.0000001	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000007	.0000001	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000007	.0000001	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	[illegible]
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000001	.0000000	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000001	.0000000	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	[illegible]
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000001	.0000000	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000001	.0000000	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000001	.0000000	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	[illegible]
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	.0000000	-----	.0000003	.0000001	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	.0000003	.0000000	-----	.0000003	.0000001	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	.0000003	.0000000	-----	.0000003	.0000001	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	.0000003	.0000000	-----	.0000003	.0000001	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	.0000003	.0000000	-----	.0000003	.0000001	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	.0000003	.0000000	-----	.0000003	.0000001	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	.0000003	.0000000	-----	.0000003	.0000001	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	.0000003	.0000000	-----	.0000003	.0000001	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	.0000003	.0000000	-----	.0000003	.0000001	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	.0000003	.0000000	-----	.0000003	.0000001	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	[illegible]	[illegible]
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	.0000005	.0000001	-----	.0000002	.0000001	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	.0000005	.0000001	-----	.0000002	.0000001	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	.0000005	.0000001	-----	.0000002	.0000001	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	.0000005	.0000001	-----	.0000002	.0000001	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	.0000005	.0000001	-----	.0000002	.0000001	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	.0000005	.0000001	-----	.0000002	.0000001	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	.0000005	.0000001	-----	.0000002	.0000001	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	.0000005	.0000001	-----	.0000002	.0000001	.0000000
[illegible]	-----	[illegible]	[illegible]	[illegible]	-----	[illegible]	.0000005	.0000001	-----	.0000002	.0000001	.0000000
AaBbDdEe --	.0453515	.0026768	.0001801	.0000126	.0192234	.0009345	.0000557	.0000035	.0098030	.0004425	.0000251	.0000015
AAbbddee --	-----	.0000019	.0000040	.0000023	-----	.0000003	.0000007	.0000004	-----	.0000001	.0000002	.0000001
aaBBddee --	-----	.0000019	.0000040	.0000023	-----	.0000003	.0000007	.0000004	-----	.0000001	.0000002	.0000001
aabbDDee --	-----	.0000019	.0000040	.0000023	-----	.0000003	.0000007	.0000004	-----	.0000001	.0000002	.0000001
aabbddEE --	-----	.0000019	.0000040	.0000023	-----	.0000003	.0000007	.0000004	-----	.0000001	.0000002	.0000001
AaBbDdEe --	-----	.0019044	.0003772	.0000591	-----	.0008036	.0001411	.0000204	-----	.0004091	.0000688	.0000967
AaBbddEe --	-----	.0019044	.0003772	.0000591	-----	.0008036	.0001411	.0000204	-----	.0004091	.0000688	.0000967
AabbDdEe --	-----	.0019044	.0003772	.0000591	-----	.0008036	.0001411	.0000204	-----	.0004091	.0000688	.0000967
aaBbDdEe --	-----	.0019044	.0003772	.0000591	-----	.0008036	.0001411	.0000204	-----	.0004091	.0000688	.0000967
AaBbddee --	-----	.0018968	.0009767	.0003344	-----	.0008023	.0003974	.0001302	-----	.0004088	.0001998	.0000645
AabbDdee --	-----	.0018968	.0009767	.0003344	-----	.0008023	.0003974	.0001302	-----	.0004088	.0001998	.0000645
AabbddEe --	-----	.0018968	.0009767	.0003344	-----	.0008023	.0003974	.0001302	-----	.0004088	.0001998	.0000645
aaBbDdee --	-----	.0018968	.0009767	.0003344	-----	.0008023	.0003974	.0001302	-----	.0004088	.0001998	.0000645
aaBbddEe --	-----	.0018968	.0009767	.0003344	-----	.0008023	.0003974	.0001302	-----	.0004088	.0001998	.0000645
aabbDdEe --	-----	.0018968	.0009767	.0003344	-----	.0008023	.0003974	.0001302	-----	.0004088	.0001998	.0000645
Aabbddee --	-----	.0018925	.0027723	.0021142	-----	.0008016	.0011653	.0008737	-----	.0004086	.0005925	.0004417
aaBbddee --	-----	.0018925	.0027723	.0021142	-----	.0008016	.0011653	.0008737	-----	.0004086	.0005925	.0004417
aabbDdee --	-----	.0018925	.0027723	.0021142	-----	.0008016	.0011653	.0008737	-----	.0004086	.0005925	.0004417
aabbddEe --	-----	.0018925	.0027723	.0021142	-----	.0008016	.0011653	.0008737	-----	.0004086	.0005925	.0004417
aabbddee --	.4535145	.4703970	.4812706	.4892653	.4805842	.4877721	.4923192	.4956349	.4901480	.4938185	.4961255	.4978048

Table 39.--Relative frequencies of male genotypes when native population (3 autosomal genes BBDDEE plus 1 sex-linked gene AA; female is heterogametic) is overflooded by X release insects (aabbddee, a-bbddee) for every native insect--Continued

	X = 200				X = 500				X = 1,000			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
AABBDDEE	0.0000124	0.0000000	0.0000000	0.0000000	0.0000020	0.0000000	0.0000000	0.0000000	0.0000005	0.0000000	0.0000000	0.0000000
AABBDDEe	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABBDdEE	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABbDDEE	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBBDDEE	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABBDDee	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABBddEE	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AAbbDDEE	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aaBBDDEE	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABBDdEe	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABbDDEe	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABbDdEE	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBBDDEe	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBBDdEE	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBbDDEE	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABBDdee	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABBddEe	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABbDDee	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABbddEE	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AAbbDDEe	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AAbbDdEE	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBBDDee	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBBddEE	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AabbDDEE	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aaBBDDEe	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aaBBDdEE	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aaBbDDEE	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABbDdEe	-----	.0000002	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBBDdEe	-----	.0000002	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBbDDEe	-----	.0000002	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBbDdEE	-----	.0000002	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABBddee	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AAbbDDee	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AAbbddEE	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aabbDDee	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aaBBddEE	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aabbDDEE	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABbDdEe	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABbddEe	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AAbbDdEe	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBBDdee	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBBddEe	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBbDDee	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBbDdEE	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AabbDDEe	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AabbDdEE	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aaBBDdEe	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aaBbDDEe	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aaBbDdEE	-----	.0000001	.0000001	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AABbddee	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AAbbDdee	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AAbbddEe	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBBddee	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AabbDDee	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AabbddEE	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aaBBDdee	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aaBbDDEe	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aaBbDdEE	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aabbDDEe	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aabbDdEE	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBbDdEe	.0049504	.0002149	.0000119	.0000007	.0019920	.0000844	.0000046	.0000003	.0009980	.0000419	.0000023	.0000001
AAbbddee	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aaBBddee	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aabbDDee	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
aabbddEE	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
AaBbDdee	-----	.0002064	.0000339	.0000047	-----	.0000830	.0000135	.0000018	-----	.0000416	.0000067	.0000009
AaBbddEe	-----	.0002064	.0000339	.0000047	-----	.0000830	.0000135	.0000018	-----	.0000416	.0000067	.0000009
AabbDdEe	-----	.0002064	.0000339	.0000047	-----	.0000830	.0000135	.0000018	-----	.0000416	.0000067	.0000009
aaBbDdEe	-----	.0002064	.0000339	.0000047	-----	.0000830	.0000135	.0000018	-----	.0000416	.0000067	.0000009
AaBbddee	-----	.0002064	.0001002	.0000321	-----	.0000830	.0000401	.0000129	-----	.0000419	.0000201	.0000064
AabbDdee	-----	.0002064	.0001002	.0000321	-----	.0000830	.0000401	.0000129	-----	.0000419	.0000201	.0000064
AabbddEe	-----	.0002064	.0001002	.0000321	-----	.0000830	.0000401	.0000129	-----	.0000419	.0000201	.0000064
aaBbDdee	-----	.0002064	.0001002	.0000321	-----	.0000830	.0000401	.0000129	-----	.0000419	.0000201	.0000064
aaBbddEe	-----	.0002064	.0001002	.0000321	-----	.0000830	.0000401	.0000129	-----	.0000419	.0000201	.0000064
aabbDdEe	-----	.0002064	.0001002	.0000321	-----	.0000830	.0000401	.0000129	-----	.0000419	.0000201	.0000064
Aabbddee	-----	.0002063	.0002988	.0002221	-----	.0000830	.0001201	.0000891	-----	.0000416	.0000602	.0000446
aaBbddee	-----	.0002063	.0002988	.0002221	-----	.0000830	.0001201	.0000891	-----	.0000416	.0000602	.0000446
aabbDdee	-----	.0002063	.0002988	.0002221	-----	.0000830	.0001201	.0000891	-----	.0000416	.0000602	.0000446
aabbddEe	-----	.0002063	.0002988	.0002221	-----	.0000830	.0001201	.0000891	-----	.0000416	.0000602	.0000446
aabbddee	.4950372	.4968929	.4980550	.4988995	.4980059	.4987526	.4992195	.4995586	.4990015	.4993756	.4996095	.4997792

Table 40.--Relative frequencies of female genotypes when native population (3 autosomal genes BBDDEE plus 1 sex-linked gene AA; female is heterogametic) is overflooded by X release insects (aabbddee, a-bbddee) for every native insect

Genotype	$\lambda = 4$				$\lambda = 2$				$\lambda = 1$			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
A BBDDEE	0.1250000	0.0109863	0.0004666	0.0000131	0.0555555	0.0021258	0.0000487	0.0000009	0.0312500	0.0007520	0.0000128	0.0000002
A BBDDEe--	-----	.0034180	.0005412	.0000363	-----	.0011338	.0000887	.0000037	-----	.0005273	.0000293	.0000010
A BBDdEE--	-----	.0034180	.0005412	.0000363	-----	.0011338	.0000887	.0000037	-----	.0005273	.0000293	.0000010
A BbDDEE--	-----	.0034180	.0005412	.0000363	-----	.0011338	.0000887	.0000037	-----	.0005273	.0000293	.0000010
A BBDdee--	-----	.0002441	.0001519	.0000246	-----	.0001417	.0000393	.0000039	-----	.0000879	.0000164	.0000013
A BbDdEE--	-----	.0002441	.0001519	.0000246	-----	.0001417	.0000393	.0000039	-----	.0000879	.0000164	.0000013
A bbDDEE--	-----	.0002441	.0001519	.0000246	-----	.0001417	.0000393	.0000039	-----	.0000879	.0000164	.0000013
A BBDdEe--	-----	.0039063	.0010195	.0001325	-----	.0014172	.0002284	.0000198	-----	.0007031	.0000890	.0000064
A BbDDEe--	-----	.0039063	.0010195	.0001325	-----	.0014172	.0002284	.0000198	-----	.0007031	.0000890	.0000064
A BbDdEE--	-----	.0039063	.0010195	.0001325	-----	.0014172	.0002284	.0000198	-----	.0007031	.0000890	.0000064
A BBDdee--	-----	.0004883	.0003924	.0001106	-----	.0002834	.0001301	.0000244	-----	.0001758	.0000618	.0000096
A BBddEe--	-----	.0004883	.0003924	.0001106	-----	.0002834	.0001301	.0000244	-----	.0001758	.0000618	.0000096
A BbDDee--	-----	.0004883	.0003924	.0001106	-----	.0002834	.0001301	.0000244	-----	.0001758	.0000618	.0000096
A BbDdEE--	-----	.0004883	.0003924	.0001106	-----	.0002834	.0001301	.0000244	-----	.0001758	.0000618	.0000096
A bbDDEe--	-----	.0004883	.0003924	.0001106	-----	.0002834	.0001301	.0000244	-----	.0001758	.0000618	.0000096
A bbDdEE--	-----	.0004883	.0003924	.0001106	-----	.0002834	.0001301	.0000244	-----	.0001758	.0000618	.0000096
a BBDDEE--	-----	.0012207	.0002220	.0000155	-----	.0004252	.0000370	.0000016	-----	.0002051	.0000124	.0000004
A BbDdEe--	.1250000	.0488281	.0113659	.0019150	.1111111	.0246598	.0037339	.0004570	.0937500	.0152344	.0018708	.0001972
a BBDDEe--	-----	.0014648	.0004010	.0000543	-----	.0005669	.0000932	.0000083	-----	.0002930	.0000373	.0000027
a BBDdEE--	-----	.0014648	.0004010	.0000543	-----	.0005669	.0000932	.0000083	-----	.0002930	.0000373	.0000027
a BbDDEE--	-----	.0014648	.0004010	.0000543	-----	.0005669	.0000932	.0000083	-----	.0002930	.0000373	.0000027
A BBddee--	-----	.0002441	.0002491	.0001218	-----	.0001417	.0001062	.0000378	-----	.0000879	.0000577	.0000178
A bbDDee--	-----	.0002441	.0002491	.0001218	-----	.0001417	.0001062	.0000378	-----	.0000879	.0000577	.0000178
A bbddEE--	-----	.0002441	.0002491	.0001218	-----	.0001417	.0001062	.0000378	-----	.0000879	.0000577	.0000178
A BbDdee--	-----	.0058594	.0054369	.0021543	-----	.0051020	.0027881	.0007837	-----	.0042187	.0017601	.0004219
A BbddEe--	-----	.0068594	.0054369	.0021543	-----	.0051020	.0027881	.0007837	-----	.0042187	.0017601	.0004219
A bbDdEe--	-----	.0058594	.0054369	.0021543	-----	.0051020	.0027881	.0007837	-----	.0042187	.0017601	.0004219
a BBDDee--	-----	.0002441	.0001705	.0000470	-----	.0001417	.0000572	.0000105	-----	.0000879	.0000276	.0000042
a BBddEE--	-----	.0002441	.0001705	.0000470	-----	.0001417	.0000572	.0000105	-----	.0000879	.0000276	.0000042
a bbDDEE--	-----	.0002441	.0001706	.0000470	-----	.0001417	.0000572	.0000105	-----	.0000879	.0000276	.0000042
a BBDdEe--	-----	.0019531	.0010023	.0002452	-----	.0008503	.0003023	.0000522	-----	.0004687	.0001381	.0000202
a BbDDEe--	-----	.0019531	.0010023	.0002452	-----	.0008503	.0003023	.0000522	-----	.0004687	.0001381	.0000202
a BbDdEE--	-----	.0019531	.0010023	.0002452	-----	.0008503	.0003023	.0000522	-----	.0004687	.0001381	.0000202
A Bbddee--	-----	.0053711	.0056453	.0037518	-----	.0048186	.0037995	.0019603	-----	.0040430	.0028007	.0012829
A bbDdee--	-----	.0053711	.0056453	.0037518	-----	.0048186	.0037995	.0019603	-----	.0040430	.0028007	.0012829
A bbddEe--	-----	.0053711	.0056453	.0037518	-----	.0048186	.0037995	.0019603	-----	.0040430	.0028007	.0012829
a BBDdee--	-----	.0004883	.0005500	.0002603	-----	.0002834	.0002281	.0000791	-----	.0001758	.0001220	.0000367
a BBddEe--	-----	.0004883	.0005500	.0002603	-----	.0002834	.0002281	.0000791	-----	.0001758	.0001220	.0000367
a BbDDee--	-----	.0004883	.0005500	.0002603	-----	.0002834	.0002281	.0000791	-----	.0001758	.0001220	.0000367
a BbddEE--	-----	.0004883	.0005500	.0002603	-----	.0002834	.0002281	.0000791	-----	.0001758	.0001220	.0000367
a bbDDEe--	-----	.0004883	.0005500	.0002603	-----	.0002834	.0002281	.0000791	-----	.0001758	.0001220	.0000367
a bbDdEE--	-----	.0004883	.0005500	.0002603	-----	.0002834	.0002281	.0000791	-----	.0001758	.0001220	.0000367
a BbDdEe--	.1250000	.0566406	.0202351	.0057327	.1111111	.0331632	.0087049	.0019198	.0937500	.0227344	.0051142	.0010004
a BBddee--	-----	.0002441	.0004394	.0003589	-----	.0001417	.0002265	.0001482	-----	.0000880	.0001344	.0000801
a bbDDee--	-----	.0002441	.0004394	.0003589	-----	.0001417	.0002265	.0001482	-----	.0000880	.0001344	.0000801
a bbddEE--	-----	.0002441	.0004394	.0003589	-----	.0001417	.0002265	.0001482	-----	.0000880	.0001344	.0000801
A bbddee--	-----	.0051270	.0091813	.0099943	-----	.0046769	.0076196	.0070967	-----	.0039551	.0062132	.0054203
a BbDdee--	-----	.0156250	.0156279	.0091370	-----	.0141723	.0099302	.0045459	-----	.0119531	.0071173	.0029142
a BbddEe--	-----	.0156250	.0156279	.0091370	-----	.0141723	.0099302	.0045459	-----	.0119531	.0071173	.0029142
a bbDdEe--	-----	.0156250	.0156279	.0091370	-----	.0141723	.0099302	.0045459	-----	.0119531	.0071173	.0029142
a Bbddee--	-----	.0151367	.0231290	.0230223	-----	.0138889	.0185852	.0158571	-----	.0117773	.0149581	.0119632
a bbDdee--	-----	.0151367	.0231290	.0230223	-----	.0138889	.0185852	.0158571	-----	.0117773	.0149581	.0119632
a bbddEe--	-----	.0151367	.0231290	.0230223	-----	.0138889	.0185852	.0158571	-----	.0117773	.0149581	.0119632
bbddee	.1250000	.2102051	.2914341	.3628430	.2222222	.3039966	.3689681	.4196078	.2812500	.3520019	.4041737	.4429544

Table 40.--Relative frequencies of female genotypes when native population (3 autosomal genes BBDDEE plus 1 sex-linked gene AA; female is heterogametic) is overflooded by X release insects (aabbddee, a-bbddee) for every native insect--Continued

Genotype	X = 4				X = 5				X = 10			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
A BBDDEE--	0.0200000	0.0003550	0.0000051	0.0000001	0.0140000	0.0001934	0.0000025	0.0000000	0.0041322	0.0000339	0.0000003	0.0000000
A BBDDEe--	-----	.0002959	.0000134	.0000004	-----	.0001865	.0000073	.0000002	-----	.0000430	.0000012	.0000000
A BBDdEE--	-----	.0002959	.0000134	.0000004	-----	.0001865	.0000073	.0000002	-----	.0000430	.0000012	.0000000
A BbDDEE--	-----	.0002959	.0000134	.0000004	-----	.0001865	.0000073	.0000002	-----	.0000430	.0000012	.0000000
A BBDDee--	-----	.0000592	.0000086	.0000006	-----	.0000424	.0000053	.0000003	-----	.0000134	.0000011	.0000001
A BBddEE--	-----	.0000592	.0000086	.0000006	-----	.0000424	.0000053	.0000003	-----	.0000134	.0000011	.0000001
A bbDDEE--	-----	.0000592	.0000086	.0000006	-----	.0000424	.0000053	.0000003	-----	.0000134	.0000011	.0000001
A BBDdEe--	-----	.0004142	.0000451	.0000029	-----	.0002713	.0000266	.0000016	-----	.0000699	.0000053	.0000003
A BbDDEe--	-----	.0004142	.0000451	.0000029	-----	.0002713	.0000266	.0000016	-----	.0000699	.0000053	.0000003
A BbDdEE--	-----	.0004142	.0000451	.0000029	-----	.0002713	.0000266	.0000016	-----	.0000699	.0000053	.0000003
A BBDdEE--	-----	.0001183	.0000355	.0000050	-----	.0000848	.0000228	.0000030	-----	.0000269	.0000057	.0000006
A BBddEe--	-----	.0001183	.0000355	.0000050	-----	.0000848	.0000228	.0000030	-----	.0000269	.0000057	.0000006
A BbDDee--	-----	.0001183	.0000355	.0000050	-----	.0000848	.0000228	.0000030	-----	.0000269	.0000057	.0000006
A BbddEE--	-----	.0001183	.0000355	.0000050	-----	.0000848	.0000228	.0000030	-----	.0000269	.0000057	.0000006
A bbDDEe--	-----	.0001183	.0000355	.0000050	-----	.0000848	.0000228	.0000030	-----	.0000269	.0000057	.0000006
A bbDdEE--	-----	.0001183	.0000355	.0000050	-----	.0000848	.0000228	.0000030	-----	.0000269	.0000057	.0000006
a BBDDEE--	-----	.0001183	.0000057	.0000002	-----	.0000763	.0000032	.0000001	-----	.0000188	.0000005	.0000000
A BbDdEe--	.0800000	.0105917	.0011436	.0001101	.0694444	.0079346	.0007837	.0000709	.0413223	.0032196	.0002544	.0000197
a BBDDEe--	-----	.0001775	.0000193	.0000012	-----	.0001187	.0000115	.0000007	-----	.0000322	.0000024	.0000001
a BBDdEE--	-----	.0001775	.0000193	.0000012	-----	.0001187	.0000115	.0000007	-----	.0000322	.0000024	.0000001
a BbDDEE--	-----	.0001775	.0000193	.0000012	-----	.0001187	.0000115	.0000007	-----	.0000322	.0000024	.0000001
A BBddee--	-----	.0000592	.0000361	.0000102	-----	.0000424	.0000246	.0000066	-----	.0000134	.0000070	.0000017
A bbDDee--	-----	.0000592	.0000361	.0000102	-----	.0000424	.0000246	.0000066	-----	.0000134	.0000070	.0000017
A bbddEE--	-----	.0000592	.0000361	.0000102	-----	.0000424	.0000246	.0000066	-----	.0000134	.0000070	.0000017
A BbDdee--	-----	.0035503	.0012517	.0002725	-----	.0030518	.0009578	.0001952	-----	.0017737	.0004201	.0000729
A BbddEe--	-----	.0035503	.0012517	.0002725	-----	.0030518	.0009578	.0001952	-----	.0017737	.0004201	.0000729
A bbDdEe--	-----	.0035503	.0012517	.0002725	-----	.0030518	.0009578	.0001952	-----	.0017737	.0004201	.0000729
a BBDDee--	-----	.0000592	.0000161	.0000022	-----	.0000424	.0000105	.0000013	-----	.0000134	.0000027	.0000003
a BBddEE--	-----	.0000592	.0000161	.0000022	-----	.0000424	.0000105	.0000013	-----	.0000134	.0000027	.0000003
a bbDDEE--	-----	.0000592	.0000161	.0000022	-----	.0000424	.0000105	.0000013	-----	.0000134	.0000027	.0000003
a BBDdEe--	-----	.0002959	.0000776	.0000103	-----	.0002035	.0000492	.0000061	-----	.0000591	.0000118	.0000013
a BbDDEe--	-----	.0002959	.0000776	.0000103	-----	.0002035	.0000492	.0000061	-----	.0000591	.0000118	.0000013
a BbDdEE--	-----	.0002959	.0000776	.0000103	-----	.0002035	.0000492	.0000061	-----	.0000591	.0000118	.0000013
A Bbddee--	-----	.0034320	.0022060	.0009414	-----	.0029670	.0018160	.0007391	-----	.0017468	.0009584	.0003495
A bbDdee--	-----	.0034320	.0022060	.0009414	-----	.0029670	.0018160	.0007391	-----	.0017468	.0009584	.0003495
A bbddEe--	-----	.0034320	.0022060	.0009414	-----	.0029670	.0018160	.0007391	-----	.0017468	.0009584	.0003495
a BBDdee--	-----	.0001183	.0000755	.0000210	-----	.0000848	.0000512	.0000135	-----	.0000269	.0000144	.0000034
a BBddEe--	-----	.0001183	.0000755	.0000210	-----	.0000848	.0000512	.0000135	-----	.0000269	.0000144	.0000034
a BbDDee--	-----	.0001183	.0000755	.0000210	-----	.0000848	.0000512	.0000135	-----	.0000269	.0000144	.0000034
a BbddEE--	-----	.0001183	.0000755	.0000210	-----	.0000848	.0000512	.0000135	-----	.0000269	.0000144	.0000034
a bbDDEe--	-----	.0001183	.0000755	.0000210	-----	.0000848	.0000512	.0000135	-----	.0000269	.0000144	.0000034
a bbDdEE--	-----	.0001183	.0000755	.0000210	-----	.0000848	.0000512	.0000135	-----	.0000269	.0000144	.0000034
a BbDdEe--	.0800000	.0171006	.0034913	.0006344	.0694444	.0136312	.0026006	.0004491	.0413223	.0066488	.0010709	.0001630
a BBddee--	-----	.0000592	.0000885	.0000500	-----	.0000424	.0000625	.0000342	-----	.0000134	.0000193	.0000098
a bbDDee--	-----	.0000592	.0000885	.0000500	-----	.0000424	.0000625	.0000342	-----	.0000134	.0000193	.0000098
a bbddEE--	-----	.0000592	.0000885	.0000500	-----	.0000424	.0000625	.0000342	-----	.0000134	.0000193	.0000098
A bbddee--	-----	.0033728	.0051970	.0043725	-----	.0029246	.0044527	.0036610	-----	.0017334	.0025741	.0020145
a BbDdee--	-----	.0101775	.0055125	.0021133	-----	.0088162	.0044873	.0016464	-----	.0052137	.0023081	.0007653
a BbddEe--	-----	.0101775	.0055125	.0021133	-----	.0088162	.0044873	.0016464	-----	.0052137	.0023081	.0007653
a bbDdEe--	-----	.0101775	.0055125	.0021133	-----	.0088162	.0044873	.0016464	-----	.0052137	.0023081	.0007653
a Bbddee--	-----	.0100592	.0124229	.0095862	-----	.0087314	.0105963	.0079926	-----	.0051868	.0060680	.0043588
a bbDdee--	-----	.0100592	.0124229	.0095862	-----	.0087314	.0105963	.0079926	-----	.0051868	.0060680	.0043588
a bbddEe--	-----	.0100592	.0124229	.0095862	-----	.0087314	.0105963	.0079926	-----	.0051868	.0060680	.0043588
a bbddee--	.3200000	.3811238	.4243955	.4557521	.3472222	.4006701	.4375470	.4638448	.4132231	.4454857	.4665629	.4810991

Table 40.--Relative frequencies of female genotypes when native population (3 autosomal genes BBDDEE plus 1 sex-linked gene AA; female is heterogametic) is overflooded by X release insects (aabbddee, a-bbddee) for every native insect--Continued

Genotype	X = 20				X = 50				X = 100			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
A BBDDEE--	0.0011338	0.0000064	0.0000000	.0000000	0.0001922	0.0000008	0.0000000	0.0000000	0.0000490	0.0000002	0.0000000	0.0000000
A BBDDEe--	-----	.0000099	.0000002	.0000000	-----	.0000015	.0000000	.0000000	-----	.0000004	.0000000	.0000000
A BBDdEE--	-----	.0000099	.0000002	.0000000	-----	.0000015	.0000000	.0000000	-----	.0000004	.0000000	.0000000
A BbDDEE--	-----	.0000099	.0000002	.0000000	-----	.0000015	.0000000	.0000000	-----	.0000004	.0000000	.0000000
A BBDDee--	-----	.0000038	.0000003	.0000000	-----	.0000007	.0000000	.0000000	-----	.0000002	.0000000	.0000000
A BBddEE--	-----	.0000038	.0000003	.0000000	-----	.0000007	.0000000	.0000000	-----	.0000002	.0000000	.0000000
A bbDDEE--	-----	.0000038	.0000003	.0000000	-----	.0000007	.0000000	.0000000	-----	.0000002	.0000000	.0000000
A BBDdEe--	-----	.0000175	.0000011	.0000000	-----	.0000028	.0000002	.0000000	-----	.0000007	.0000000	.0000000
A BbDDEe--	-----	.0000175	.0000011	.0000000	-----	.0000028	.0000002	.0000000	-----	.0000007	.0000000	.0000000
A BbDdEE--	-----	.0000175	.0000011	.0000000	-----	.0000028	.0000002	.0000000	-----	.0000007	.0000000	.0000000
A BBDdEE--	-----	.0000076	.0000014	.0000001	-----	.0000013	.0000002	.0000000	-----	.0000003	.0000001	.0000000
A BBddEe--	-----	.0000076	.0000014	.0000001	-----	.0000013	.0000002	.0000000	-----	.0000003	.0000001	.0000000
A BbDDee--	-----	.0000076	.0000014	.0000001	-----	.0000013	.0000002	.0000000	-----	.0000003	.0000001	.0000000
A BbddEE--	-----	.0000076	.0000014	.0000001	-----	.0000013	.0000002	.0000000	-----	.0000003	.0000001	.0000000
A bbDDEe--	-----	.0000076	.0000014	.0000001	-----	.0000013	.0000002	.0000000	-----	.0000003	.0000001	.0000000
A bbDdEE--	-----	.0000076	.0000014	.0000001	-----	.0000013	.0000002	.0000000	-----	.0000003	.0000001	.0000000
a BBDDEE--	-----	.0000046	.0000001	.0000000	-----	.0000007	.0000000	.0000000	-----	.0000002	.0000000	.0000000
A BbDdEe--	.0226757	.0013552	.0000917	.0000064	.0096117	.0004700	.0000281	.0000018	.0049015	.0002219	.0000126	.0000008
a BBDDEe--	-----	.0000084	.0000005	.0000000	-----	.0000014	.0000001	.0000000	-----	.0000003	.0000000	.0000000
a BBDdEE--	-----	.0000084	.0000005	.0000000	-----	.0000014	.0000001	.0000000	-----	.0000003	.0000000	.0000000
a BbDDEE--	-----	.0000084	.0000005	.0000000	-----	.0000014	.0000001	.0000000	-----	.0000003	.0000000	.0000000
A BBddee--	-----	.0000038	.0000019	.0000004	-----	.0000007	.0000003	.0000001	-----	.0000002	.0000001	.0000000
A bbDDee--	-----	.0000038	.0000019	.0000004	-----	.0000007	.0000003	.0000001	-----	.0000002	.0000001	.0000000
A bbddEE--	-----	.0000038	.0000019	.0000004	-----	.0000007	.0000003	.0000001	-----	.0000002	.0000001	.0000000
A BbDdee--	-----	.0009598	.0001906	.0000298	-----	.0004031	.0000709	.0000102	-----	.0002049	.0000345	.0000048
A BbddEe--	-----	.0009598	.0001906	.0000298	-----	.0004031	.0000709	.0000102	-----	.0002049	.0000345	.0000048
A bbDdEe--	-----	.0009598	.0001906	.0000298	-----	.0004031	.0000709	.0000102	-----	.0002049	.0000345	.0000048
a BBDDee--	-----	.0000038	.0000007	.0000001	-----	.0000007	.0000001	.0000000	-----	.0000002	.0000000	.0000000
a BBddEE--	-----	.0000038	.0000007	.0000001	-----	.0000007	.0000001	.0000000	-----	.0000002	.0000000	.0000000
a bbDDEE--	-----	.0000038	.0000007	.0000001	-----	.0000007	.0000001	.0000000	-----	.0000002	.0000000	.0000000
a BBDdEe--	-----	.0000160	.0000028	.0000003	-----	.0000027	.0000004	.0000000	-----	.0000007	.0000001	.0000000
a BbDDEe--	-----	.0000160	.0000028	.0000003	-----	.0000027	.0000004	.0000000	-----	.0000007	.0000001	.0000000
a BbDdEE--	-----	.0000160	.0000028	.0000003	-----	.0000027	.0000004	.0000000	-----	.0000007	.0000001	.0000000
A Bbddee--	-----	.0009522	.0004912	.0001679	-----	.0004018	.0001992	.0000652	-----	.0002046	.0001000	.0000323
A bbDdee--	-----	.0009522	.0004912	.0001679	-----	.0004018	.0001992	.0000652	-----	.0002046	.0001000	.0000323
A bbddEe--	-----	.0009522	.0004912	.0001679	-----	.0004018	.0001992	.0000652	-----	.0002046	.0001000	.0000323
a BBDdee--	-----	.0000076	.0000038	.0000008	-----	.0000013	.0000006	.0000001	-----	.0000003	.0000002	.0000000
a BBddEe--	-----	.0000076	.0000038	.0000008	-----	.0000013	.0000006	.0000001	-----	.0000003	.0000002	.0000000
a BbDDee--	-----	.0000076	.0000038	.0000008	-----	.0000013	.0000006	.0000001	-----	.0000003	.0000002	.0000000
a BbddEE--	-----	.0000076	.0000038	.0000008	-----	.0000013	.0000006	.0000001	-----	.0000003	.0000002	.0000000
a bbDDEe--	-----	.0000076	.0000038	.0000008	-----	.0000013	.0000006	.0000001	-----	.0000003	.0000002	.0000000
a bbDdEE--	-----	.0000076	.0000038	.0000008	-----	.0000013	.0000006	.0000001	-----	.0000003	.0000002	.0000000
a BbDdEe--	.0226757	.0032428	.0004673	.0000654	.0096117	.0012708	.0001689	.0000222	.0049015	.0006304	.0000813	.0000104
a BBddee--	-----	.0000038	.0000054	.0000026	-----	.0000007	.0000009	.0000004	-----	.0000002	.0000002	.0000001
a bbDDee--	-----	.0000038	.0000054	.0000026	-----	.0000007	.0000009	.0000004	-----	.0000002	.0000002	.0000001
a bbddEE--	-----	.0000038	.0000054	.0000026	-----	.0000007	.0000009	.0000004	-----	.0000002	.0000002	.0000001
A bbddee --	-----	.0009484	.0013902	.0010594	-----	.0004011	.0005833	.0004372	-----	.0002044	.0002964	.0002209
a BbDdee--	-----	.0028489	.0011653	.0003639	-----	.0012040	.0004680	.0001404	-----	.0006134	.0002342	.0000693
a BbddEe--	-----	.0028489	.0011653	.0003639	-----	.0012040	.0004680	.0001404	-----	.0006134	.0002342	.0000693
a bbDdEe--	-----	.0028489	.0011653	.0003639	-----	.0012040	.0004680	.0001404	-----	.0006134	.0002342	.0000693
a Bbddee --	-----	.0028413	.0032607	.0022814	-----	.0012027	.0013640	.0009388	-----	.0006130	.0006924	.0004739
a bbDdee--	-----	.0028413	.9932607	.0022814	-----	.0012027	.0013640	.0009388	-----	.0006130	.0006924	.0004739
a bbddEe--	-----	.0028413	.9932607	.0022814	-----	.0012027	.0013640	.0009388	-----	.0006130	.0006924	.0004739
a bbddee--	.4535145	.4713434	.4826567	.4903225	.4805842	.4881729	.4929017	.4960715	.4901480	.4940229	.4964218	.4980256

Table 40.--Relative frequencies of female genotypes when native population (3 autosomal genes BBDDEE plus 1 sex-linked gene AA; female is heterogametic) is overflooded by X release insects (aabbddee, a-bbddee) for every native insect--Continued

Genotype	X = 200				X = 500				X = 1,000			
	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4	F_1	F_2	F_3	F_4
A BBDDEE--	0.0000124	0.0000000	0.0000000	0.0000000	0.0000020	0.0000000	0.0000000	0.0000000	0.0000005	0.0000000	0.0000000	0.0000000
A BBDDEe--	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
A BBDdEE--	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
A BbDDEE--	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
A BBDDee--	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
A BBddEE--	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
A bbDDEE--	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
A BBDdEe--	-----	.0000002	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
A BbDDEe--	-----	.0000002	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
A BbDdEE--	-----	.0000002	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
A BbDdEE--	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
A BBddEe--	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
A BbDDee--	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
A BbddEE--	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
A bbDDEe--	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
A bbDdEE--	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
a BBDDEE--	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
A BbDdEe--	.0024752	.0001076	.0000059	.0000003	.0009960	.0000422	.0000023	.0000001	.0004990	.0000210	.0000011	.0000000
a BBDDEe--	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
a BBDdEE--	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
a BbDDEE--	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
A BBddee--	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
A bbDDee--	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
A bbddEE--	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
A BbDdee--	-----	.0001033	.0000170	.0000023	-----	.0000415	.0000067	.0000009	-----	.0000308	.0000034	.0000005
A BbddEe--	-----	.0001033	.0000170	.0000023	-----	.0000415	.0000067	.0000009	-----	.0000308	.0000034	.0000005
A bbDdEe--	-----	.0001033	.0000170	.0000023	-----	.0000415	.0000067	.0000009	-----	.0000308	.0000034	.0000005
a BBDDee--	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
a BBddEE--	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
a bbDDEE--	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
a BBDdEe--	-----	.0000002	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
a BbDDEe--	-----	.0000002	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
a BbDdEE--	-----	.0000002	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
A Bbddee--	-----	.0001032	.0000501	.0000160	-----	.0000415	.0000201	.0000064	-----	.0000208	.0000100	.0000032
A bbDdee--	-----	.0001032	.0000501	.0000160	-----	.0000415	.0000201	.0000064	-----	.0000208	.0000100	.0000032
A bbddEe--	-----	.0001032	.0000501	.0000160	-----	.0000415	.0000201	.0000064	-----	.0000208	.0000100	.0000032
a BBDdee--	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
a BBddEe--	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
a BbDDee--	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
a BbddEE--	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
a bbDDEe--	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
a bbDdEE--	-----	.0000001	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
a BbDdEe--	.0024752	.0003139	.0000399	.0000050	.0009960	.0001252	.0000158	.0000020	.0004990	.0000626	.0000078	.0000010
a BBddee--	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
a bbDDee--	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
a bbddEE--	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000	-----	.0000000	.0000000	.0000000
A bbddee--	-----	.0001032	.0001494	.0001111	-----	.0000415	.0000601	.0000446	-----	.0000208	.0000301	.0000223
a BbDdee--	-----	.0003096	.0001171	.0000344	-----	.0001245	.0000469	.0000137	-----	.0000624	.0000234	.0000068
a BbddEe--	-----	.0003096	.0001171	.0000344	-----	.0001245	.0000469	.0000137	-----	.0000624	.0000234	.0000068
a bbDdEe--	-----	.0003096	.0001171	.0000344	-----	.0001245	.0000469	.0000137	-----	.0000624	.0000234	.0000068
a Bbddee--	-----	.0003095	.0003489	.0002381	-----	.0001245	.0001402	.0000955	-----	.0000624	.0000702	.0000478
a bbDdee--	-----	.0003095	.0003489	.0002381	-----	.0001245	.0001402	.0000955	-----	.0000624	.0000702	.0000478
a bbddEe--	-----	.0003095	.0003489	.0002381	-----	.0001245	.0001402	.0000955	-----	.0000624	.0000702	.0000478
a bbddee--	.4950372	.4969961	.4982044	.4990106	.4980059	.4987939	.4992795	.4996032	.4990014	.4993959	.4996395	.4998014

Table 41.--Suppression of native population (10,000 insects, 1:1 sex ratio) by overflooding generations with release strain bearing conditional lethal traits when population is held static by conventional means

Case	Genotypes of-- Native strain	Release strain	Inheritance of conditional lethal traits in release strain: Trait 1	Trait 2	Trait 3	Release ratio[1]	Sex	Number of viable genotypes in-- F_1	F_2	F_3	F_4
Overflooded in parental generation											
1a---	aa	AA	1 dom.auto.	----	----	50	-	4	4	4	4
1b---	aa	AA	1 dom.auto.	----	----	100	-	1	1	1	1
2a---	AABB	aabb	2 auto.(3,4)	----	----	50	-	4	5	3	2
2b---	AABB	aabb	2 auto.(3,4)	----	----	100	-	1	1	1	1
3----	AABB	aabb	2 auto.(2-4)	----	----	1,000	-	20	10	5	3
4----	AABBDD	aabbdd	3 auto.(4-6)	----	----	100	-	1	1	1	0
5a---	AABBDDEE	aabbddee	4 auto.(6-8)	----	----	20	-	23	12	3	1
5b---	AABBDDEE	aabbddee	4 auto.(6-8)	----	----	50	-	4	2	0	0
6a---	AABBDDEE	aabbddee	3 auto.+ 1 s.l.(6-9)	----	----	50	M	194	31	7	2
6a---	AABBDDEE	aabbddee	3 auto.+ 1 s.l.(6-9)	----	----	50	F	98	16	3	1
6b---	AABBDDEE	aabbddee	3 auto.+ 1 s.l.(6-9)	----	----	200	M	50	8	1	0
6b---	AABBDDEE	aabbddee	3 auto.+ 1 s.l.(6-9)	----	----	200	F	25	3	1	0
7----	aabb	AABB	1 dom.auto.	1 dom.auto.	----	50	-	4	1	0	0
8----	aaBBDD	AAbbdd	1 dom.auto.	2 auto.(3,4)	----	50	-	4	1	0	0
9a---	aaBBDDEE	AAbbddee	1 dom.auto.	3 auto.(4-6)	----	20	-	23	9	2	0
9b---	aaBBDDEE	AAbbddee	1 dom.auto.	3 auto.(4-6)	----	50	-	4	1	0	0
10a--	AABBDDEE	aabbddee	2 auto.(3,4)	2 auto.(3,4)	----	20	-	23	10	2	0
10b--	AABBDDEE	aabbddee	2 auto.(3,4)	2 auto.(3,4)	----	50	-	4	1	0	0
11a--	aaBBDDEE	AAbbddee	1 dom.s.l.	3 auto.(4-6)	----	10	M	41	29	8	2
11a--	aaBBDDEE	AAbbddee	1 dom.s.l.	3 auto.(4-6)	----	10	F	41	33	15	5
11b--	aaBBDDEE	AAbbddee	1 dom.s.l.	3 auto.(4-6)	----	50	M	2	1	0	0
11b--	aaBBDDEE	AAbbddee	1 dom.s.l.	3 auto.(4-6)	----	50	F	2	1	0	0
12a--	aabbdd	AABBDD	1 dom.auto.	1 dom.auto.	1 dom.auto.	10	-	83	8	1	0
12b--	aabbdd	AABBDD	1 dom.auto.	1 dom.auto.	1 dom.auto.	50	-	4	0	0	0
13a--	aabbDDEE	AABBddee	1 dom.auto.	1 dom.auto.	2 auto.(3,4)	10	-	83	11	1	0
13b--	aabbDDEE	AABBddee	1 dom.auto.	1 dom.auto.	2 auto.(3,4)	20	-	23	2	0	0
14a--	aabbDDEE	AABBddee	1 dom.auto.	1 dom.auto.	2 auto.(2-4)	10	-	83	19	4	1
14b--	aabbDDEE	AABBddee	1 dom.auto.	1 dom.auto.	2 auto.(2-4)	50	-	4	1	0	0
15a--	aabbDDEE	AABBddee	1 dom.s.l.	1 dom.auto.	2 auto.(3,4)	20	M	11	1	0	0
15a--	aabbDDEE	AABBddee	1 dom.s.l.	1 dom.auto.	2 auto.(3,4)	20	F	11	2	0	0
15b--	aabbDDEE	AABBddee	1 dom.s.l.	1 dom.auto.	2 auto.(3,4)	50	M	2	0	0	0
15b--	aabbDDEE	AABBddee	1 dom.s.l.	1 dom.auto.	2 auto.(3,4)	50	F	2	0	0	0
Overflooded in parental, F_1, F_2, and F_3 generations											
16a--	aa	AA	1 dom.auto.	----	----	10	-	83	10	2	0
16b--	aa	AA	1 dom.auto.	----	----	50	-	4	0	0	0
17a--	AABB	aabb	2 auto.(3,4)	----	----	5	-	278	51	8	1
17b--	AABB	aabb	2 auto.(3,4)	----	----	50	-	6	1	0	0
18a--	AABB	aabb	2 auto.(2-4)	----	----	100	-	197	34	7	2
18b--	AABB	aabb	2 auto.(2-4)	----	----	1,000	-	20	3	1	0
19a--	AABBDD	aabbdd	3 auto.(4-6)	----	----	10	-	83	14	2	0
19b--	AABBDD	aabbdd	3 auto.(4-6)	----	----	50	-	4	1	0	0
20a--	AABBDDEE	aabbddee	4 auto.(6-8)	----	----	5	-	278	32	2	0
20b--	AABBDDEE	aabbddee	4 auto.(6-8)	----	----	20	-	23	2	0	0
21a--	AABBDDEE	aabbddee	3 auto.+ 1 s.l.(6-9)	----	----	4	M	1,800	248	26	2
21a--	AABBDDEE	aabbddee	3 auto.+ 1 s.l.(6-9)	----	----	4	F	1,000	147	16	2
21b--	AABBDDEE	aabbddee	3 auto.+ 1 s.l.(6-9)	----	----	200	M	50	2	0	0
21b--	AABBDDEE	aabbddee	3 auto.+ 1 s.l.(6-9)	----	----	200	F	25	1	0	0
22a--	aabb	AABB	1 dom.auto.	1 dom.auto.	----	3	-	625	39	3	0
22b--	aabb	AABB	1 dom.auto.	1 dom.auto.	----	10	-	83	3	0	0
23a--	aaBBDD	AAbbdd	1 dom.auto.	2 auto.(3,4)	----	3	-	625	52	2	1
23b--	aaBBDD	AAbbdd	1 dom.auto.	2 auto.(3,4)	----	10	-	83	4	2	0
24a--	aaBBDDEE	AAbbddee	1 dom.auto.	3 auto.(4-6)	----	3	-	625	58	3	0
24b--	aaBBDDEE	AAbbddee	1 dom.auto.	3 auto.(4-6)	----	20	-	23	1	0	0
25a--	AABBDDEE	aabbddee	2 auto.(3,4)	2 auto.(3,4)	----	3	-	625	70	4	1
25b--	AABBDDEE	aabbddee	2 auto.(3,4)	2 auto.(3,4)	----	20	-	23	1	0	0
26a--	aaBBDDEE	AAbbddee	1 dom.s.l.	3 auto.(4-6)	----	2	M	556	67	5	1
26a--	aaBBDDEE	AAbbddee	1 dom.s.l.	3 auto.(4-6)	----	2	F	556	65	11	1
26b--	aaBBDDEE	AAbbddee	1 dom.s.l.	3 auto.(4-6)	----	20	M	11	1	0	0
26b--	aaBBDDEE	AAbbddee	1 dom.s.l.	3 auto.(4-6)	----	20	F	11	1	0	0
27a--	aabbdd	AABBDD	1 dom.auto.	1 dom.auto.	1 dom.auto.	2	-	1,111	51	2	0
27b--	aabbdd	AABBDD	1 dom.auto.	1 dom.auto.	1 dom.auto.	10	-	83	1	0	0
28a--	aabbDDEE	AABBddee	1 dom.auto.	1 dom.auto.	2 auto.(3,4)	2	-	1,111	64	2	1
28b--	aabbDDEE	AABBddee	1 dom.auto.	1 dom.auto.	2 auto.(3,4)	10	-	83	1	0	0
29a--	aabbDDEE	AABBddee	1 dom.auto.	1 dom.auto.	2 auto.(2-4)	3	-	625	35	2	1
29b--	aabbDDEE	AABBddee	1 dom.auto.	1 dom.auto.	2 auto.(2-4)	20	-	23	1	0	0
30a--	aabbDDEE	AABBddee	1 dom.s.l.	1 dom.auto.	2 auto.(3,4)	1	M	1,250	143	9	0
30a--	aabbDDEE	AABBddee	1 dom.s.l.	1 dom.auto.	2 auto.(3,4)	1	F	1,250	178	16	1
30b--	aabbDDEE	AABBddee	1 dom.s.l.	1 dom.auto.	2 auto.(3,4)	10	M	41	1	0	0
30b--	aabbDDEE	AABBddee	1 dom.s.l.	1 dom.auto.	2 auto.(3,4)	10	F	41	1	0	0

[1] Number of release insects for every native insect.

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